Dr. K. S. Misra by courtesy of the Director, Zoological Survey of India.

References.

Bhimachar, B. S.—*Current Science,* riv, 12-16 (1945).
Das, B. K.—*Proc. Ind. Sc. Cong.,* Session 29 (1942).
Day, F.—*Fauna Brit. Ind.,* Vols. 1 & 2.
Hora, S. L.—*Rec. Ind. Mus.,* xxii, 633-688 (1921).
Idem—*Ibid,* xliii, 97-115 (1941).
Hora, S. L. and Misra, K. S.—*Journ., Bombay Nat. Hist. Soc.,* xliii, 218-226 (1942).
Mazhar Husain—*Statistical Year Book (Hyderabad State),* (1938).
Rahimullah, M.—*Journ., Bomb. Nat. Hist. Soc.,* xliii, 648-653 (1943).
Idem—*Ibid,* xliv, 88-91 (1943).
Idem—*Ibid,* xlv, 73-77 (1944).
Rahimullah, M. and Das, B. K.—*Journ., Osm. Univ.,* iii, 1-23 (1935).

ON THE BIOLOGY OF *DANAUS CHRYSIPPUS* (LINNÆUS) AND ITS PARASITES.

BY

Durgadas Mukerji and Basanta Kumar Behura,

Entomology Section, Zoology Dept., Calcutta University.

Danaus chrysippus (L.), popularly known as the 'plain tiger', is one of the commonest and most widely distributed butterflies of India.

Food plant:—Sevastopulo (1933, 1938) records that the food plant of this butterfly is *Calotropis procera* R. Br. occurring in Calcutta (1938). Bingham (1905) noted that *Calotropis gigantea* R. Br. and various other Asclepiads were its food plants, and Ayyar (1940) concurred with him. Bell (1909) was of the opinion that both *C. gigantea* R. Br. and *C. procera* R. Br. served as its food plants. Jandu (1943) subscribed to the same view. We find that in Calcutta, in our college garden at Ballygunge as well as in its neighbourhood, the plant *C. gigantea* R. Br. commonly occurs but we have not come across in these localities any *C. procera* R. Br. It may be noted that *C. gigantea* R. Br. commonly occurs in Bengal, and the species *procera* is said to be occasional (Prain, 1903). Since the two species of *Calotropis,* viz. *gigantea* and procera, closely resemble each other, it is worth while considering whether there has been any confusion as to the identification of the host plant of this insect in Calcutta.

Egg laying:—The eggs of the 'plain tiger' butterfly are usually laid singly on the underside of the leaves of *C. gigantea* R. Br. It has also been noticed that the eggs are occasionally laid on the adaxial side of the leaves as well as on the stem of this food plant. This, therefore, increases the surface area of infection.

Seasonal occurrence:—We reared the larvae of this butterfly that hatched in our laboratory from the eggs obtainable from *C. gigantea*

R. Br. during the months of February and March 1945. Sevastopulo (1945) too obtained the larvae in October 1931 and in March 1943. It is said, however, to occur almost throughout the year (Lefroy, 1909). Jandu (1943) opines that this butterfly 'is specially abundant during June to November'. But observations carried on from January to September 1945 indicate that in Calcutta it is abundant mostly in February and March.

Food material:—It is generally reported that the larvae of this butterfly feed on the leaves of the host plant. Now, while this is the normal food habit, there were occasions when we came across larvae feeding on the flowers. This was not reported by the previous authors. It is well known that the colouration of the *chrysippus* larva is striking because of the bands of yellow and black on the body. But in the flower-eating forms this colour is slightly subdued. Moreover, the faecal matter of the flower-eating larvae looked pinkish buff, in sharp contrast to the greenish frass of the leaf-eating ones.

The maximum length of the larva obtainable by us from larvae reared in our laboratory was 39.4 mm.

Pupal colouration:—We obtained five kinds of dichroic pupal form—the green pale and deep, pink pale and deep, and yellow pale. Bingham (1905) states that the pupal colour is 'dichroic, some green, others pale pink or wax white'. Sevastopulo (1938) speaks of it as blue green and pinkish buff; Jandu (1943) reports it to be green or pinkish. Now out of the nine pupae which came from different stocks and were randomly picked out, we observed that among these one was pink, three pale pink, three green, one pale green, and one pale yellow in colour. The varied colours persisted throughout the pupal period. It is worth while pointing out that a parasitised pupa changed to grey. This grey colour appeared on the fourth or fifth day of pupation.

The parasites:—In a lot of ten larvae reared in our laboratory during February and March 1945, we found six of these had been parasitized by a Tachinid fly. The larvae of the Tachinid fly came out on the fifth day of pupation of the Lepidopterous insects. They issued by puncturing the pupal case just a little below the golden black border occurring round the posterior (upper) end. The dipterous larvae soon after emergence formed puparia at the bottom of the glass vial in which the pupae of the butterfly were kept. The colour of the puparia was yellow brown at first, gradually turning to dark brown. It took nine to ten days for the emergence of the fly from its puparium. It is curious to note that in a solitary case a Tachinid larva issued out from the plain tiger larva which as a result died before reaching the pupal stage. As to the number of parasites occurring within a single host, it was seen that mostly one fly emerged from one pupa, but in rare cases as many as six dipterous larvae came out of a single parasitized pupa and all these pupated at the bottom of the glass vial. Of these six puparia, emergence of only three flies could be noted.

The maximum length of the fly obtainable was 11 mm.

Now it may be asked whether *D. chrysippus* (L.) became parasitized by the Tachinid fly while it was at the egg or at the larval

stage. It is generally known that a Tachinid fly parasitizes the host at its caterpillar stage and there is no record of it parasitizing its host at the egg stage of the latter. Now, we reared the caterpillars from such eggs as collected from plants in the field and kept them all through within closed vials; we fed them there with the leaves of *C. gigantea* R. Br. which were thoroughly brushed and freed from any insect egg or foreign bodies. There was no chance of the fly to come in contact with the larval host within the tube. Notwithstanding this, the flies emerged within the vials from the caterpillar hosts showing that infection must have occurred at the egg stage of the host. A table showing the dates of pupation of the Lepidopterous larva, dates of emergence of the Tachinid flies, etc. is given below. The

No.	Date of collection of Lepidopterous egg	Date of emergence of Lepidopterous larva	Date of pupation of Lepidopterous larva	Date of issue of Tachinid larva	Date of emergence of fly
1.	25-2-45	28-2-45	10-3-45	14-3-45	23-3-45
2	25-2-45	28-2-45	10-3-45	14-3-45	23-3-45
3.	25-2-45	28-2-45	12-3-45	16-3-45	26-3-45
4.	...	1-3-45	10-3-45	14-3-45	24-3-45
5.	...	[1] 6-3-45	9-3-45	13-3-45	22-3-45
6	...	6-3-45	found dead on 8-3-45, and a Tachinid larva had pupated near it.		

butterfly harbours other parasitic insects as well. The eggs of this butterfly are cream-white in colour, but changed in colour if they had been infected by a Trichogrammatid (Chalcidae). Out of six eggs collected on 17-3-45 five were found parasitized. These eggs turned gradually mottled black with the development of blackish specks on it. From each egg a number of Trichogrammatids emerged on 24-3-45. The smallest number of parasitic wasps was found to be five and the highest was nine, reared from a single egg of the host. It was observed that the chalcid wasps came out by puncturing the egg just a little below its base.

Sevastopulo (1933) states that he had 'frequently bred batches of a Hymenopteron' insect 'from *chrysippus* pupae'. But we have not observed any Hymenopteron parasite from pupae, but from the eggs as noted above.

Bell (1909) reports that 'the larvae are much attacked by ichneumons' which, the authors have not yet come across in this locality.

The authors take this opportunity of recording their thanks to Mr. J. C. Banerji, M.A., of the Department of Botany, Calcutta University for the identification of the plant.

[1] Larvae collected from the field.

REFERENCES.

Ayyar, T. V. R.—*Handbooks of Economic Entomology for South India*, p 383 (1940).

Bell, T. R.—'The common butterflies of the plains of India', *Journ., Bombay Nat. Hist. Soc.*, xix, No. 1, pp. 50-52 (1909).

Bingham, C. T.—*Fauna of British India, Butterflies*, i, pp. 11-12 (1905).

Jandu, A. S.—'Biological notes on the butterflies of Delhi, Pt. II', *Indian Journ. Ent.*, v, Pts. I and II, pp. 223-224 (1943).

Lefroy, H. M.—*Indian Insect Life*, p. 407 (1909).

Prain, D.—*Bengal Plants*, ii, p. 689 (1903).

Sevastopulo, D. G.—'The enemies of *Danais chrysippus*, L.', *Journ., Bombay Nat. Hist. Soc.*, xxxvi, No. 4, p. 1014 (1933).

————'The early stages of Indian Lepidoptera', *Ibid*, xl, No. 3, pp. 396-397 (1938).

————'The early stages of Indian Lepidoptera, Pt. XIII', *Ibid*, xlv, No. 2, p. 190 (1945).

ADDENDUM

[Received for publication dated 11th Oct. 1945].

Specimens of the Chalcid referred to in our paper, as parasitizing the eggs of the butterfly *D. chrysippus* (Linnaeus) are identified by Mr. M. S. Mani of St. John's College, Agra, as *Trichogramma evanescens minutum* (Riley). He writes to us: 'It is already known from India, and in fact is being used in the control of borers of sugarcane and was also tried against teak defoliators.'

Specimens of the Tachinid flies reported in the same paper found parasitizing the butterfly were sent to Dr. C. H. Curran, American Museum of Natural History, New York, through the courtesy of T/5 Frank H. Jacobson, 975th GM Supply Det., APO 494. Dr. Curran writes that there are two species, viz. *Sturmia wainwrighti* Baranoff and *Sturmia* sp. With regard to parasitization he is of opinion: 'It is probable that these flies lay extremely small eggs on the leaves of various plants which are eaten by caterpillars. Possibly, the parasites gained access to your larvae on food fed to them.'

On the present circumstances we accept the views of Dr. Curran in thinking that the caterpillars were parasitized through the agency of their food fed to them.

At the same time the other possibility cannot be excluded. It might be that as the eggs of the Tachinid flies were very small, the butterfly laid its eggs right on the eggs of the fly and since the newly hatched caterpillar has the curious habit of eating the egg case as its first food (Bell, 1909) the developing eggs of the Tachinid were eaten along with that and thus infection occurred.

We take the opportunity of expressing our heartfelt thanks to Dr. Curran, Mr. Mani, Mr. Jacobson and Major R. Senior-White, for their kind collaboration.

OBSERVATIONS ON SOME BALANIDAE FROM MAHABALIPURAM

BY

K. S. Srinivasan,

Curator, Government Museum, Madras

(*With a plate*)

The following account is based on the periodical observations made during 1944-45 on some barnacles from Mahabalipuram, sea-shore village in the Chingleput District, about 53 miles from Madras and south of it. Our knowledge of the Balanidae of the Madras Presidency is mainly from the records from Pamban, Krusadai Island and Madras. Altogether four barnacles are known from these localities, viz· *Balanus tintinnabulum* (Linn.) var. *communis,* Darwin, *Balanus amphitrite,* var. *venustus,* Darwin, *Balanus longirostrum,* Hoek and *Chelonobia testudinaria* (Linn.) (Gravely, 1941; Sundara Raj, 1927). The barnacles collected from Mahabalipuram, however, included *Chthamalus stellatus* (Poli) in addition to the two species of Balanus already known from Krusadai and Madras. *Chthamalus stellatus* (Poli) has not been recorded from this Presidency, so far as I know, though it is reported from the coast of Bengal (Hoek, 1913).

The coast at Mahabalipuram is almost sandy except for a small area about the temple (the Shore-temple) situated on the shore-line. In this area there are few rocks, some of which, however, are a little inside the sea. A large number of boulders are piled up along the shore, to some distance, on either side of the shore temple, to protect the same from severe wave action. A sea-groyne is also constructed in front of the temple as an additional measure of safety. The rocks and the sea-groyne are subjected to severe wave action as they are being continually dashed by the strong rolling waves, while the boulders on either side of the temple are periodically dashed by the waves during high-tide and are only splashed or sprayed during low tide. The rocks, boulders and the sea-groyne form very suitable substrata for the barnacles to settle down and grow.

The distribution of the barnacles in this area is interesting. *Balanus tintinnabulum* is mainly confined to the rocks which are a little inside the sea and constantly dashed by the waves. On these rocks, a greater settlement is seen on the faces which are not directly exposed to the waves. Peculiarly enough, this barnacle is absent on the boulders and the sea-groyne at the shore.

Balanus amphitrite is seen in association with *Balanus tintinnabulum.* It is also seen at the shore on some of the boulders and rocks, which are, however, dashed by the waves. In several cases, this barnacle is seen in larger numbers on somewhat less exposed areas, and the more exposed areas being poorly colonised or not colonised at all.

Chthamalus stellatus is perhaps the most dominant species on this shore. It is plentiful on the more exposed sides of the wave-beaten and sprayed boulders and rocks on the coast, sometimes practically to the exclusion of the other species (Figs. 1 & 2). The settlement is luxuriant in the splash zone, and it gradually decreases towards the spray zone beyond which only stray patches are seen. It is plentiful on the sea-ward side of the groyne also, but on its land-ward side and in crevices, the growth is very limited. No growth, however, is seen on completely submerged boulders, even though in their vicinity, a large number of boulders, which are not submerged had plenty of these barnacles on them. It is thus interesting to note that *Chthamalus stellatus* is abundant on more or less open situations and tends to become scarce in positions of extreme shelter and is practically absent on submerged substrata, though according to Fischer (1928) it can survive a continuous immersion of twelve months under natural conditions. My observations, however, are in general agreement with those already made on the same barnacle by Hatton (1938), Hatton & Fischer-Piette (1932), Kitching (1934-35) and Moore (1935-36).

No attempt is made to go deeply into the question of the life-history of these barnacles. However, the few observations made on the forms occurring at the shore may be recorded. After the monsoon rains, by about the end of November 1944, the barnacles came up for the first time on rocks and boulders and the sea-groyne. They occurred in a few isolated patches here and there. In the succeeding months, their number gradually increased and a maximum growth was reached by about May 1945, and in the case of *Chthamalus stellatus*, practically all rocks and boulders splashed and sprayed showed extensive patches, sometimes even replacing the vegetation that was once before on some of the boulders. By about July 1945, *Balanus amphitrite* disappeared and only a few boulders in favourable situations were seen with *Chthamalus stellatus*. Later on, however, even they were killed and their shells destroyed, either by the grinding action of the sands carried by the waves, or by the boulders themselves being gradually smothered by the deposition of sand.

The shells of many of the barnacles are attacked by boring algae such as *Mastigocoleus*, *Hyella* and *Gomontia*. *Balanus tintinnabulum* is particularly interesting in that besides the shell-boring algae already referred to, several others are also seen growing on the shell. Some algae occur either as encrustations or cushions, while others are macrophytic and grow attached to the shell by their basal system. Among the encrusting and the cushion forming types may be mentioned *Peyssonnelia*, *Lithoderma* and *Lyngbya* and among the larger forms, *Cladophora*, *Chaetomorpha*, *Ectocarpus*, *Hypnea*, *Gracilaria* and *Grateloupia*.

References.

Bassindale, R.—The developmental stages of three English Barnacles, *Balanus balanoides* (Linn.), *Chthamalus stellatus* (Poli) and *Verruca stroemia* (O.F. Muller). *Proc. Zool. Soc. Lond.*, 1936, 57-74.

Darwin, C.—A Monograph on the Cirripedia, Vol. II, The Balanidae, etc. London, (*Ray Society*), 1854.

Fischer, E.—Sur la distribution géographique de quelques organismes de rocher le long des côtes de la Manche. *Trav. Lab., Marit. Saint-Servan, Fasc.*, II, 1928, 16 (after Moore, H. B., & Kitching, J. A.).

Gravely, F. H.—Shells and other animal remains found on the Madras Beach. I. *Bull. Madras Govt. Museum, New Ser., Nat. Hist. Sn.*, Vol. V, No. 1, 1941, 70-73.

Hatton, H.—Essais de bionomie explicative sur quelques espèces intercotidales d'algues et d'animaux. *Ann. Instit. Oceanogr. N.S.*, Vol. XVII, 1938, 241-348, (after Moore, H. B., & Kitching, J. A.).

Hatton, H., & Fischer-Piette, E.—Observation et expèriences sur le peuplement des côtes rocheuses par les Cirripèdes. *Bull. Instit. Oceanogr. Monaco.*, No. 592, 1932, 1-15, (after Moore, H. B., & Kitching, J. A.).

Hoek, P. P. C.—The Cirripedia of the Siboga-Expedition, Cirripedia Sessilia, Monographie XXXI, b, 1913, *Siboga-Expeditie*.

Kitching, J. A.—An introduction to the Ecology of Intertidal Rock Surfaces on the coast of Argyll. *Trans. Roy. Soc. Edin.*, Vol. LVIII, pt. II, 1934-35, (No. 15), 351-374.

Moore, H. B.—The biology of *Balanus balanoides*, V. Distribution in the Plymouth area. *Jour. Mar. Biol. Assn.*, Vol. XX, 1935-36, 701-716.

FIG. 1.

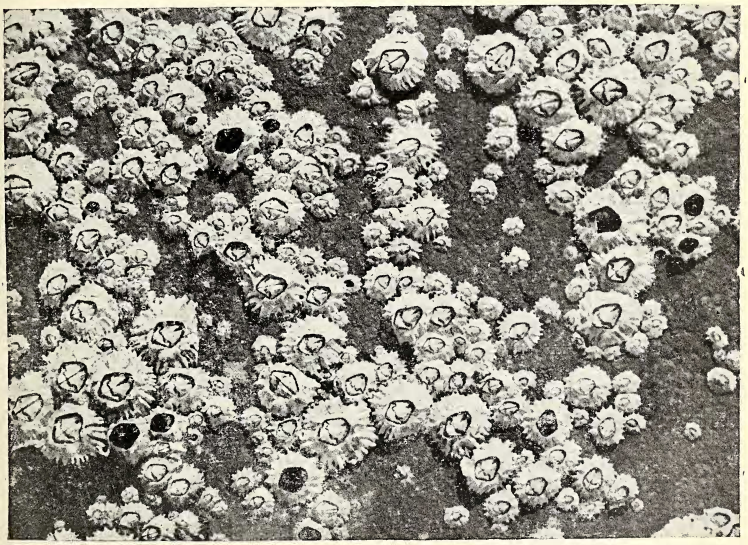


FIG. 2.

Photo by K. S. SRINIVASAN.

Balanidae from Mahabalipuram.

(For explanation see end of article).

Moore, H. B., & Kitching, J. A.—The biology of *Chthamalus stellatus* (Poli). *Journ. Mar. Biol. Assn.*, Vol. XXIII, 1938-39, 521-541.

Parke, M. W.—The biology of *Balanus balanoides*—II. Algal infections of the shell. *Jour. Mar. Biol. Assn.*, Vol. XX, 1935-36, 49-56.

Sundara Raj, B.—'Cirrepedia' *Bull. Madras Govt. Museum, New Ser., Nat. Hist. Sn.*, Vol. I, No. 1, 1927, 111-115.

Explanation of Figures.

Fig. 1.—Photograph of a group of boulders showing extensive growth of *Chthamalus stellatus* (Poli) on the exposed and splashed surfaces.

Fig. 2.—Photograph of *Chthamalus stellatus* showing different stages of growth. ca x 2.

THE BIRDS OF THE SIMLA AND ADJACENT HILLS

BY

A. E. Jones, M.B.O.U.

Part I

INTRODUCTION.

Before commencing to enumerate the birds of these hills it may not be amiss to give a short account of the various types of terrain encountered by the traveller.

Starting from Kalka a mixture of plains and hill jungle is found; the former being represented by Mango, Pipal, Banyan, Bombax and Kikar; the latter by Bamboo and Cactus (candelabra) among many others. A little higher up the Long-Leaved Pine (*P. longifolia*) forms most of the forest growth. Next in order we come to 'Banj' Oak (*Q. incana*), Rhododendron (*R. roseus*), Deodar (*C. deodara*), Moru Oak (*Q. dilatata*), Blue Pine (*P. excelsa*), Himalayan Spruce (*Picea morinda*), Kharsu Oak (*Q. semicarpifolia*) and lastly 'Narkanda Pine' (*Abies pindrow*). Forest growth ceases at about 11,500 ft. being succeeded by Alpine conditions, pasture, crag and perpetual snow.

The Simla Hills District is divided into 27 Indian States, with an area of 4,519 square miles; Bashahr being by far the largest and at the same time the most remote. The Sutlej river passes through this State for a considerable distance, after which it divides the district from Kulu and Suket State which lie to the north. The geographical limits are confined between the parallels of latitudes 30° 20 ft. and 32° 5 ft. and longitudes 76° 30 ft. to 79° 1 ft.

The annual rainfall averages about 68 inches, most of which falls from June to September.

In the *Journal* (Vol. xxvi, No. 2, May 20, 1919) I wrote an article 'A List of Birds found in the Simla Hills 1908-1918'. It was a very incomplete list, but since its publication we have been

visited by many eminent ornithologists among whom may be mentioned Hugh Whistler, C. B. Ticehurst, H. W. Waite and Bengt Berg the Swedish naturalist and author, who between them have added much fresh information to our knowledge of the avifauna of these parts. I ought also to mention my old friend P. T. L. Dodsworth who did some most valuable work and was the author of numerous articles and notes on the ornithology of Simla. S. Basil Edwardes was another very keen enthusiast and added much useful information on bird life in these hills besides writing his very useful contribution to the ornithology of Delhi.[1]

For the nomenclature I have followed Hugh Whistler in his invaluable 'Popular Handbook' and Stuart Baker in 'The Fauna of British India Birds', whose memories and unstinted help I shall always cherish.

To all those friends who have supplied me with notes and specimens I tender my best thanks. I may here remark that these records are in most cases substantiated by specimens now in the Museum of the Bombay Natural History Society;[2] all told these amounted to nearly three thousand skins collected during a residence of thirty-eight years during which time my business took me to Lahore and Ambala for the winter months. In the latter district, especially about Jagadhri, I collected a number of very interesting specimens one of which, the Black-throated Diver (*Colymbus arcticus*) was new to the birds of India.

1. **Corvus corax.** The Raven.

SIZE: That of a good sized domestic fowl. Length 24 inches.

FIELD CHARACTERS: Entirely black, including bill, legs and feet.

DISTRIBUTION: Does not occur in the Simla Hills. However, Whistler found it uncommon in some of the lower tensils of the Kangra district, and I saw it at Bakloh, 4,000 ft. and Dalhousie, 7,000 ft. in June and July, 1910.

GENERAL HABITS: Like all the Crow family this bird is a scavenger, in fact like all the *Corvidae*, it is omnivorous. The aerial gymnastics indulged in by this bird at times are fascinating to watch. Usually seen in pairs or family parties though it is not an uncommon sight to see large congregations at drinking, bathing and roosting places; these would probably be composed entirely of immigrant birds, as I have only noticed such gatherings in the cold weather. The usual call note is a deep *pruk, pruk* (Whistler) but its vocabulary covers a very wide range which includes some quite musical bell-like notes.

NIDIFICATION: Most eggs are laid in January and February, exceptionally December and March. Eggs usually number 4-7, the latter exceptionally. The nest is constructed of sticks and is placed either in a tree or on a ledge of a cliff; I once found one built in the girders of the railway bridge over the Haro River near Campbellpore.

This year, my friend Lieut. D. W. Cotton, in a communication to me records finding a nest in a cliff which contained large young ones on 27-2-46. 'Elevation approximately 5,000 ft.'

2. **Corvus macrorhynchos intermedius** Adams. The Jungle Crow.

SIZE: 18 inches; rather larger than the House Crow (*C. splendens*).

FIELD CHARACTERS: A small edition of the Raven but lacks the pointed throat hackles and has a higher pitched voice.

---

[1] *Jour. B.N.H.S.*, Vol. xxxi, 261, 567.

[2] The subspecific attributions are confirmed or made by Mr. Sálim Ali on the basis of this material.—EDS.

DISTRIBUTION : The Himalayas from the foothills to 13,000 feet (Whistler) where our subspecies is known as *Corvus macrorhynchos intermedius,* but it may be worth mentioning that the birds found in the lower hills (2,500 feet to 3,500 feet) have a more mellow note, while their tails are definitely shorter, giving them, specially in flight, a more squat outline. These would, I think, be referred to the race *C. m. macrorhynchos?* Occasionally it wanders up to 6,000 feet or even more.

GENERAL HABITS : Resident throughout the year. Large numbers congregate at their favourite roosting places, where they begin to assemble at 3 p.m. leaving again before daybreak. Its aerial evolutions almost rival those of the Raven but I have never seen it indulge in the 'roll'. Dun and white specimens occur. Omnivorous.

NIDIFICATION : The nest is a small replica of that of the Raven and like that species warmly lined with wool, hair and dry grass. Eggs number from 4 to 6 and are mostly laid during the latter half of April.

3. **Corvus splendens splendens** Vieillot. The House Crow.

SIZE : 16 inches.

FIELD CHARACTERS : Crown of head and throat black, ashy gray from nape to mantle, continued on to breast, darker on flanks and abdomen; remaining plumage black glossed green, blue or purple.

DISTRIBUTION : Lower hills up to 5,000 feet; occasionally up to 7,000 feet. Colonies at Solan, Kandaghat and Subathu.

GENERAL HABITS : Tame and familiar but ever alert. Gregarious. While the Jungle Crow may be found on the edges of the larger cities, the House Crow frequents the busiest streets, docks and railway stations. Omnivorous and a cunning thief. This species is also subject to the same aberrations of colouring as the foregoing species.

NIDIFICATION : The main breeding season is during June and July. The usual materials of the exterior of the nest are slender twigs, lined with hair, dry grass, wool and rags. A number of nests examined at Kalka were made of pieces of wire. Eggs number from three to six, four or five being the usual clutch; the ground colour of the egg is blue-green blotched with umber brown and pale inky purple.

4. **Urocissa melanocephala occipitalis** Blyth. The Red-billed Blue Magpie.

SIZE : 25-27 inches, the tail being about 16 to 18 inches.

FIELD CHARACTERS : Head, throat and upper breast black; white nape patch and under parts; back, wings and long graduated tail blue grey, the last with a conspicuous white tip to each feather. The coral red bill, legs and feet distinguish it from the Yellow-billed Blue Magpie which is uncommon in the Simla Hills.

DISTRIBUTION : From Nepal, westwards to the Simla Hills where its chief stronghold is between 5,000 feet to 7,500 feet and down to 4,000 feet in winter.

GENERAL HABITS : Except in the breeding season is generally seen in small flocks or family parties threading their way through the forest. Though usually arboreal they often come to earth if anything of interest attracts them, their long tails then being held well above the ground. Has a variety of harsh raucous notes.

NIDIFICATION : Takes place from the end of April till the middle of June. The nest often placed in a most conspicuous position from 8 feet to 30 feet from the ground either in forest or the trees growing around cultivated fields. The nest is made with fine twigs and lined with dry grass and fibres. Six is the commonest number of eggs in a clutch, but I have known of one egg highly incubated; ground colour stone usually heavily blotched with sienna brown.

5. **Urocissa flavirostris cucullata** Gould. The Yellow-billed Blue Magpie.

SIZE : 26 inches, length of tail same as preceding species.

FIELD CHARACTERS : Same as *U. melanocephala* with the following exceptions : bill, legs and feet yellow; white nape patch much smaller.

DISTRIBUTION : A rare resident in the Simla Hills, found in a higher zone than the previous species. I found it much commoner across the Sutlej in Suket State. Outside our area from Murree to Assam.

General Habits : Same as the foregoing species but more addicted to the Deodar (*C. deodara*) forests above 7,500 feet.

Nidification : Similar to *U. melanocephala*.

6. **Dendrocitta vagabunda pallida** Blyth. The Indian Tree-Pie.

Size : Rather variable, between 18-20 inches, the tail about 12 inches.

Field Characters : A long tailed bird with sooty brown head and throat with a rufous body ; a large pale grey patch on the wings ; slaty-blue graduated tail each feather tipped black.

Distribution : In these hills up to 5,000 feet.

General Habits : Resident. Frequents open forest and the secondary growth near villages, roadside avenues and mango topes. Bold and fearless, it sometimes enters bungalows in search of food. Omnivorous.

Nidification : In Northern India most eggs are laid in April and May. The nest is loosely or compactly constructed of fine twigs, lined with grass bents and roots ; it is usually built some height from the ground in a fork of a tree, sheeshum, mango and 'kikur' being the favourites. The clutch usually consists of four or five eggs but frequently only three incubated are found. These are clay coloured with deep brown blotches with underlying markings of pale ashy.

7. **Dendrocitta formosae occidentalis** Ticehurst. The Himalayan Tree-Pie.

Size : Same as the Indian Tree-Pie.

Field Characters : An ashy-grey and black long tailed bird with a dipping flight. Arboreal and extremely shy.

Distribution : Fairly common in the Oak (*Q. incana*) forests up to 7,500 feet and as low as 2,500 feet. Resident. It is curious that there should be so few records of it to the N.W. of the Simla Hills. Neither Whistler nor Hingston found it in the Dharmsala-Kangra area, though the former found it common in Mandi State (*Journ. B.N.H.S.*, vol. xxx, p. 223).

General Habits : Resident. Not uncommon. During the breeding season frequents Oak (*Q. incana*) and is then very quiet and secretive. Much more in evidence during the cold weather when it roams through cultivated areas in small parties of three to six. Call notes much as *D. vagabunda* but not so musical.

Nidification : Usually takes place from the middle of May to the beginning of June. The nest is a very slight structure of fine twigs lined with roots and is placed at no great height from the ground in a small Holly tree, Oak or Box tree with little regard to concealment. Eggs number 3 to 5, the ground colour is cream to pale stone, heavily blotched with dark brown.

8. **Garrulus lanceolatus** Vigors. The Black-throated Jay.

Size : As Common Mynah with a longer tail.

Field Characters : Head and ear coverts black, throat streaked black and white ; body plumage vinous grey ; wings and tail black with blue barring and white tips. Weak and undulating flight. Except in the breeding season generally seen in small parties but sometimes as many as 20 or more. Often seen feeding on the ground.

Distribution : Found from the Suleiman Hills, along the N.-W. Himalayas to Nepal. Resident up to 7,500 feet but descends to lower elevations (3,500 feet) in winter.

General Habits : Common in the immediate vicinity of Simla where it keeps mostly to the oak forests.

Nidification : At the approach of the breeding season the flocks break up into pairs and nests may be found from the middle of April till the end of May. The nest is constructed of fine twigs lined with roots and fibres. Eggs number 3 to 5 and are finely freckled with very pale red-brown on a pale sea green ground, sometimes with dark brown hair streaks.

9. **Garrulus bispecularis bispecularis** Vigors. The Himalayan Jay.

Size : Same as the Black-throated Jay.

Field Characters : A vinous fawn bird with a conspicuous white rump, black tail, wings and well defined broad moustachial streaks. A very favourable view discloses the beautiful blue barring on the wings and tail.

DISTRIBUTION : In the Simla Hills this Jay occupies a slightly higher zone than the last species, usually above 7,000 feet up to 8,500 feet, though in the winter it may descend to 6,000 feet. Its usual habitat is the grand mixed forests of the conifers and Moru Oak (*Q. dilatata*).

GENERAL HABITS : Resident ; during autumn and winter wanders into the precincts of Simla, i.e. 'Jakko' and the 'Glen', but in summer retires to the forests of Mahasu and Kufri. Gregarious in the cold season when it often consorts with the former species. Note : the usual harsh screech.

NIDIFICATION : The breeding season is from mid-May to mid-June. The nest is a much more substantial structure than that of the Black-throated Jay, being made of stout twigs well felted with green moss, and is lined with roots. Not much attempt is made at concealment. Eggs number three or four. They are, in a series, distinguishable from those of the last named species by the more definite, but still very faint markings and a smoother surface.

10. Nucifraga caryocatactes hemispila Vigors. The Himalayan Nutcracker.

SIZE : Slightly larger than a Jay.

FIELD CHARACTERS : A dark brown bird copiously speckled with white ; the white outer tail feathers are very conspicuous in flight. No white on rump or upper tail coverts.

DISTRIBUTION : The Mahasu-Kufri range in the immediate neighbourhood of Simla. Farther afield very common in the Narkanda-Baghi forest. Odd birds wander into the outskirts of Simla, mostly in autumn and winter.

GENERAL HABITS : Found in the deep forests consisting of deodar, spruce, Blue Pine (*P. excelsa*) and oak, where it is not uncommon between 6,000 feet to 10,000 feet. Its diet is varied but a large proportion consists of the seeds of the conifers, berries and insects. Its flight is buoyant and dipping and it may often be seen flying from one patch of forest to another when the white outer tail feathers are very conspicuous. The usual note often uttered on the wing is a harsh, far-reaching *kra-kra-kra* but when its young or its nests are in danger it gives vent to a low plaintive *jiu*.

NIDIFICATION : As far as I know the only nest found is the one I recorded in the *Journal B.N.H.S.*, Vol. xxv, No. 2, p. 602 as follows : 'A nest I found on March 10th, 1917, containing two young about 5 days old and an addled egg was placed 22 feet from the ground in a deodar tree ; it was supported by two horizontal branches where they sprang from the main stem. In appearance it resembled a jay's, but the exterior had, besides the twigs, a certain amount of lichen and dry oak (*Q. dilatata*) leaves incorporated in it. Lined with dry grass, moss, lichen and hair. It measured externally 8 inches wide by 4 inches deep. Inside breadth 4 inches by 2½ inches deep.

The young were clothed in white down. The egg is a broad oval. The ground colour is a very pale greenish grey and the markings, which are most numerous at the large end, consist of irregular blotches, some larger and some smaller, of umber brown with a few underlying freckles of pale inky purple. It measures 1.42 inches long by 1.07 inches wide.

The tree, in which the nest was, stands on a steep hillside facing east, and the surrounding forest, consisting of deodar, pine, oak and holly is fairly dense, though there is no undergrowth. Elevation, 7,500 feet.'

Young are out of the nest, following the old birds, by the first half of April, so it would appear that most eggs are laid by the middle of February—on the average the coldest month of the year !

11. Pyrrhocorax pyrrhocorax (L.) The Red-billed Chough.

SIZE : Same as House Crow.

FIELD CHARACTERS : Whole plumage glossy black with coral red bill, and legs.

DISTRIBUTION : Rarely seen in these hills and that only in winter under stress of very severe weather. T. R. Thorpe came across several at Jutogh (6,000 ft) in January, 1935 ; while I saw a small party on the open hillside between Kandaghat and Kereighat (5,500 ft.) in February, 1938. Waite observed it as common between Jangi to Namgia. Wynter-Blyth reported it from Daranghati.

GENERAL HABITS : Frequents the open Alpine pastures in summer from 10,000 feet to 15,000 feet. During winter descends to lower elevations.

NIDIFICATION : Breeds in holes, caves and clefts of precipitous cliffs, making a nest of sticks, lined with wool. Lays four or five eggs of a pale cream ground colour heavily blotched with pale sepia and purplish grey.

12. **Pyrrhocorax graculus graculus** (L.). The Alpine Chough.

SIZE : 15 inches.

FIELD CHARACTERS : Recognisable by its entire plumage being glossy black, short yellow bill and red legs.

DISTRIBUTION : A bird of the higher hills. Major Bowring Walsh observed it near the Kungma Pass ca. 15,000 feet and Namgia, Kunam and Jangi 9,000 feet August, 1943.

GENERAL HABITS : Same as foregoing.

NIDIFICATION : Much the same as the Red-billed Chough.

13. **Parus major casehmiriensis** Hartert. The Indian Grey Tit.

SIZE : That of a House Sparrow.

FIELD CHARACTERS : Black head, throat and abdominal stripe ; conspicuous white cheek patch ; slaty grey back and wings.

DISTRIBUTION : From the foothills it is common during the breeding season from 4,000 feet to 6,500 feet occasionally to 8,000 feet (Fagu) ; in the cold weather descends to lower elevations and spreads out into the plains.

GENERAL HABITS : A bird of the lighter forested areas, the edges of cultivation and even open hillsides where a few scattered bushes occur. Usually seen in pairs and family parties. Occasionally this bird will attach itself to the mixed hunting associations composed of Red-headed Tits, Tree-Creepers and Willow-Warblers. Its food is composed of insects of all kinds which, if too large to swallow whole, it will hold down with its strong feet and devour piece-meal.

NIDIFICATION : Takes place from mid-April to June. Some pairs I suspect have two broods, though some of the later nests are due to accidents having happened to the first attempts. The site chosen varies between a hole in a tree, an abandoned rat hole in a sloping hillside, a hole in a building or in a re-vetted roadside bank (the most common site). The nest is a mass of moss lined with monkey's fur. Eggs number 4 to 6 and are white speckled with red brown.

14. **Parus monticolus monticolus** Vigors. The Green-backed Tit.

SIZE : Same as the Grey Tit.

FIELD CHARACTERS : Differs from the last species by its green back and primrose yellow underparts, also the white tips to the wing feathers (secondaries).

DISTRIBUTION : Resident from 5,000 feet to 10,000 feet. Found throughout the Himalayas. I have seen it in winter at Rawalpindi, so some birds descend to the plains at this season though I think this is exceptional.

GENERAL HABITS : A forest bird and common in the oak belt, less so in pure deodar. Its food consists mainly of insects and in this connection it is worth mentioning that I have seen it more than once feeding on the Pierid butterfly *Aporia agathon* as these come to the flowers of the Horse Chestnut.

NIDIFICATION : Differs in no way from that of the foregoing species, nesting sites and materials being similar. The eggs differ slightly from the Grey Tit's in being rounder, more obtuse and more heavily blotched. They number four to six, though Whistler mentions eight.

15. **Machlolophus xanthogenys xanthogenys** Vigors. The Yellow-cheeked Tit.

SIZE : Same as above.

FIELD CHARACTERS : This very attractive bird is easily recognised by the presence of the black crest, the longer feathers tipped with buff. Yellow supercilium and yellow cheeks, otherwise the colouring is much the same as the Green-backed Tit.

DISTRIBUTION : This race occurs in the N.-W. Himalayas from Murree to Nepal.

GENERAL HABITS : Very capricious in its choice of habitat. Only oak (*Q. incana*) seems to suit it and even in large tracts of other apparently suitable forest it is entirely absent. Never found in the deodar forests. The breeding zone

is from 5,500 feet to 7,000 feet. Waite noted it at Bahli and Sungri (*J.B.N.H.S.* Vol. 45, No. 4, p. 533) which is exceptionally high.

NIDIFICATION : The site chosen for the nest is a hole in a tree from the level of the ground to 20 feet or more. The materials are a pad of moss in which the nest proper is formed and lined with fur. Eggs usually number four in a full clutch and closely resemble those of the Grey Tit but the markings are fewer and finer.

16. **Lophophanes melanolophus** Vigors. The Crested Black Tit.

SIZE : Length 4 inches.

FIELD CHARACTERS : Body, wings and tail iron grey with a black head, crest, throat and breast; conspicuous white cheeks; grey under parts, rust coloured flanks and two wing bars of pale rufous.

DISTRIBUTION : Common in the deodar forests around Simla from 6,000 ft. to 11,000 ft. Descending to slightly lower elevations in the cold weather. During the winter of 1932 I found it not uncommon in Rawalpindi.

GENERAL HABITS : Shows a decided preference for the coniferous forests. A very restless sprightly little bird. Its food consists mainly of insects, seeds and berries. Frequently comes to ripe sunflower heads for the seed. Very sociable and most of the foraging associations one encounters contain a few of this species.

NIDIFICATION : Takes place from April to June. Sometimes double brooded. Favourite sites for the nest are a natural hole in a tree or in a revetment wall. Moss constitutes the main foundation of the nest, the receptacle for the eggs being warmly lined with fur and hair. The clutch consists of from five to eight eggs which are white with rusty red blotches often forming a zone round the larger end.

17. **Lophophanes rufonuchalis rufonuchalis** (Blyth). The Simla Tit.

SIZE : $4\frac{1}{2}$ inches.

FIELD CHARACTERS : Might be confused with the foregoing but, apart from its slightly superior size, lacks the rufous wing-bars.

DISTRIBUTION : A bird of the higher elevations from 9,000 feet to the tree limit. Common in Lahoul in the Juniper forests between 10,000 feet and 12,000 feet (Whistler). In the Simla Hills it is not uncommon in the Narkanda-Baghi area. Some birds in the N.W. descend to the plains in the cold season, for I obtained specimens at Rawalpindi and Sang-jani during the winter of 1927. But this must be exceptional considering the fact that both Hugh Whistler and H. W. Waite were stationed there and never encountered it.

GENERAL HABITS : Another bird of the coniferous forests with all the same cheery demeanour of the above.

NIDIFICATION : Whistler appears to be the only ornithologist to give us any information on this phase of its economy. He found two nests containing young on 2nd and 4th June respectively. These were placed under large stones embedded in the hillside (*Ibis*, Jan. 1925, p. 165) 'the nests were of the usual soft materials'.

18. **Lophophanes dichrous dichrous** (Blyth). The Brown-crested Tit.

SIZE : 4 inches.

FIELD CHARACTERS : A plain brown bird with red irides and a brown crest and the vestiges of a buff colour.

DISTRIBUTION : During the breeding season found from 9,000 feet up to 10,500 feet or more. In winter slightly lower, e.g. at Theog 7,500 feet, Kufri and Mahasu 8,500 feet.

GENERAL HABITS : Much the same as other members of this genus but I found it more addicted to deciduous growth as well as the stunted *Quercus semecarpifolia*.

NIDIFICATION : The only information regarding this point we owe to B. B. Osmaston who found it nesting at Deoban 9,000 feet in Garhwal. He says the hole containing the nest had evidently been excavated by the parent birds. The nest was composed of moss copiously lined with grey hair. Five fresh eggs were found in one nest and were of the usual white, spotted all over, but mainly at the large end with red brown. Date 30/4. Sálim Ali found a nest with chicks in the same locality on May 1936.

19. Lophophanes rubidiventris (Blyth). The Rufous-bellied Crested Tit.

SIZE : $4\frac{1}{2}$ inches.

FIELD CHARACTERS : No wing bars. Slightly smaller than the Crested Black Tit which, except for the rust red of the belly, it closely resembles in general colouring.

DISTRIBUTION : In our district this species was obtained at 11,000 feet on the *Chor* mountain by H. C. Smith and recorded by me, *vide J.B.N.H.S.*, Vol. xliv, No. 3, p. 474. Extends as far as Nepal.

GENERAL HABITS : Nothing recorded.

NIDIFICATION : Not known.

20. Sylviparus modestus simlaensis Stuart Baker. The Yellow-browed Tit.

SIZE : 4 inches.

FIELD CHARACTERS : A small olive green bird, underparts slightly paler. Tail slightly forked. The yellow brow is only visible when the bird is in the hand.

DISTRIBUTION : A bird of fairly high elevations. About Simla it is found in the cold weather from October to March between elevations of 6,000 feet and 8,000 feet.

GENERAL HABITS : An active little bird usually found associating with the hunting parties composed of Red-headed Tits, Tree Creepers, Goldcrests, etc. Apparently only one bird is attached to each of these assemblies. Note like English Blue Tit—rarely uttered.

NIDIFICATION : Not known. Summer distribution? See Waite's note *J.B.N.H.S.*, Vol. xlv, No. 4, p. 533.

21. Aegithaliscus concinnus iredalei Stuart Baker. The Red-heated Tit.

SIZE : 4 inches.

FIELD CHARACTERS : The red head, black cheeks and throat should be sufficient to identify this little bird but it should be mentioned that the young ones lack the black throat. Upper plumage pure slaty grey ; lower plumage pale russet ; iris cream.

DISTRIBUTION : Resident from 5,000 feet to 8,000 feet in the Simla district, and down to 3,000 feet in winter.

GENERAL HABITS : Except while nest-building, incubating and tending the young while they are in the nest, this small bird is seen in family parties and small flocks. They pair off in February or early March. Unlike other tits which roost in holes this species favours a more or less sheltered branch or twig in a bush or shrub where the party all huddle together for warmth. This habit was disastrous to their numbers in January, 1945, when Simla (as well as other parts of the Hills) was visited by a snowstorm which fell to a depth of seven to ten feet. The result was, that of this usually common species, at the commencement of the breeding season, very few pairs remained to rear their broods of young. This state of affairs was confirmed by several of my correspondents.

NIDIFICATION : Takes place in normal seasons in March and April, most nests contain the full complement of eggs by the end of the former month. The exterior of the nest is mainly composed of green moss with the addition of spiders' webs and lichen. The lining consists of feathers of various other birds, principally of fowls and pheasants. The birds present a quaint sight carrying a feather almost as large as themselves! The clutch consists of from four to six eggs in these parts. The nest is placed from almost ground level, in a bush or over-hanging grass a foot from the ground, to 40 feet up a deodar.

22. Ægithaliscus niveogularis Gould. The White-throated Tit.

SIZE : 4 inches.

FIELD CHARACTERS : The white throat, black eye-stripe and broad brown pectoral band are diagnostic.

DISTRIBUTION : Mr. & Mrs. Pring found it not uncommon at Talra, Taroch State, Simla Hills at an elevation of 11,000 feet in May and June. Stuart Baker's record of eggs sent him by Dodsworth, whom I knew very well, must be due to some mistake. Dodsworth never worked the higher elevations.

General Habits: Very similar to the above species. A bird of deciduous forests, i.e. Silver Birch, Cherry, etc.

Nidification: The breeding season is stated to be May and June. The nest is very similar to that of the Red-headed Tit. B. B. Osmaston found a nest on June 11, placed 10 feet from the ground in a Cherry tree. It contained half fledged young. This was in the Tons Valley, Garhwal, 'just below the snows'.

23. Sitta himalayensis Jard. and Selby. The White-tailed Nuthatch.

Size: 5 inches.

Field Characters: Upper plumage slaty blue; underparts from throat pale rufous shading to a deeper tone on the abdomen and under tail coverts; white bases to the central tail feathers (not easily seen in the field); black eye stripe. Sexes alike.

Distribution: Not uncommon in oak forests in the neighbourhood of Simla. Resident from 6,500 feet to 9,000 feet.

General Habits: Arboreal. Seen usually in pairs and family parties, often attaches itself to the mixed foraging associations of small birds. A bird of the tree trunks running either up or down in its tireless search for food. Note: a sharp *twit-twit*. In Spring a pleasant trill is uttered.

Nidification: The breeding-season is from mid-March to the end of April. A small hole, usually one in an oak, is selected for the nursery. If the hole is too large the entrance is contracted to suit the size of the bird's body by plastering it with clay. The cavity is lined with chips of dead leaves on which the eggs lie. The clutch consists of three to six eggs which are white with red blotches. The hole may be from 4 feet to 50 feet from the ground.

24. Sitta leucopsis leucopsis Gould. The White-cheeked Nuthatch.

Size: 5 inches.

Field Characters: Differs from the above in having the sides of the face white, also in having the crown of the head black; underparts shading from cream on throat and breast to deep russet on the abdomen and flanks.

Distribution: Resident from 7,500 feet to 10,000 feet. Rare in Simla. A flock seen on 'Jakko', 8,000 feet.

General Habits: Practically the same as the White-tailed Nuthatch but whereas *himalayensis* prefers oak forest this species is a bird of the conifers. Its usual call-note is well described by Whistler, i.e. a plaintive, tinny, *quair-quair*.

Nidification: As far as I can discover Col. R. H. Rattray is the only ornithologist who has taken the eggs of this species. He found the bird fairly common round Dunga Gali and Miranjani, above 8,000 feet, Murree Hills. He says (*J.B.N.H.S.*, Vol. xvi, p. 424), 'A common nesting site is high up in a tall fir tree that has been struck by lightning and cracked down the centre; a convenient place in this crack is selected. Eggs 5 to 8 in number.' I found a nest in a similar situation near Kufri; the old birds were feeding young.

(To be continued)

ON THE CORRECT NAME OF THE TIBETAN SHRIKE USUALLY CALLED *LANIUS TEPHRONOTUS*

BY

Ernst Mayr, Ph.D.,

American Museum of Natural History, New York.

In his excellent monograph of the shrikes M. Olivier tentatively adopted the name *nipalensis* for the Tibetan Shrike, usually called *Lanius tephronotus* (op. cit., p. 48, 208), following the nomenclature employed by the workers of the British Museum (Ticehurst, Whistler, and Kinnear). However, Olivier remarks correctly that the question of the name of this species is by no means settled and that he believes *'que cette question devra etre considérée à nouveau.'*

In the following paragraphs an attempt is made to present such a renewed consideration of the nomenclature of this species. The obvious conclusion, to be drawn from the herewith presented evidence, is that there is no reason for transferring the name *tephronotus* Vigors from the Tibetan Shrike to a population in the western Himalayas.

The Type-Locality of *Lanius tephronotus* Vigors.

This shrike was described by Vigors in the *Proceedings of the Zoological Society of London* for 1830-31, page 43, from a collection of some sixty species received by Gould from the 'Himalayas'. Some of these specimens were illustrated by Gould in his simultaneously published *A Century of Birds of the Himalaya Mountains*. The name of the collector and the localities at which the specimens had been collected were, apparently deliberately, suppressed by Vigors and Gould. When, in the course of years, it was found that many of the sixty species described by Vigors had different subspecies in the eastern and western Himalayas, various authors restricted the type-localities of the species in the Vigors-Gould collection either to the eastern or western Himalayas. However, there is much evidence that the greater part of the collection came from a single area and that this area was the Simla-Almora district of the western Himalayas. Ticehurst and Whistler (1924, *Ibis*, pp. 468-73) therefore took the drastic step of restricting the type localities of all the sixty species described by Vigors to the Simla-Almora district in the western Himalayas. This action necessitated a radical shift of type-locality for no less than ten species as well as a change of names for several of them. How Ticehurst and Whistler thought they could justify their action is not quite apparent to me since they themselves admit that several of the species of the Gould collection are not now found in the Simla-Almora district (*Myiophoneus horsfieldi, Otis himalayanus, Otis nigriceps*, and *Garrulax ocellatus*). Neither does *Pericrocotus brevirostris* occur in the western Himalayas as pointed out by Bangs (1930, *Bull. Mus. Comp. Zoöl.*, 70, p. 297) and by Mayr (1940, *Ibis*, pp. 714-15). Hartert (*Vögel pal. Fauna*, p. 925) and later Rothschild 1926, *Novit. Zool.*, 33, p. 239) pointed out that the specimen of *Dryobates hyperythrus* illustrated by Gould undoubtedly belonged to the eastern Himalayan race, and that there was no excuse to shift the type locality to the western Himalayas and to rename the eastern Himalayan form. It is obvious from this evidence that the Vigors-Gould collection was a composite one, and that it contained material from the eastern Himalayas and perhaps from other parts of India, in addition to the Simla-Almora material.

By far the most injurious effect of the wholesale shifting of type localities was that it resulted in the shifting of the name *Lanius tephronotus* Vigors from the well-known Tibetan Shrike, to which this name had been applied for nearly one hundred years, to a shrike of the western Himalayas. Whistler and Kinnear (1933, *Jour. Bombay Nat. Hist. Soc.*, 36, pp. 336-37) apply the name *tephronotus* to a local population of shrikes found in Lahul and the Suru Valley and use for the Tibetan Shrike the name *nipalensis* Hodgson.

This confusing transfer of names is unjustified and unnecessary for the following reasons:

(1) The name *tephronotus* has been applied to the Tibetan Shrike with such unanimity for the ninety-three years between 1831 and 1924 that only compelling reasons would justify a transfer. However, the only reasons advanced by Ticehurst and Whistler are vague conjectures.

(2) Even if the entire Gould-Vigors collection had been collected in the western Himalayas, it would still be unwarranted to reject the name *tephronotus* for the Tibetan Shrike since it is quite possible that the species is found in the western Himalayas as an occasional winter visitor or straggler. It has been reported breeding as far west as Garhwal (Whymper), although these birds may not have been typical *tephronotus*.

(3) The fact that Vigors described both *erythronotus* and *tephronotus* in the same work indicates that the gray-backed shrike he had before him was the very distinct Tibetan bird and not a specimen of the Lahul population which is much more similar to *erythronotus*. This is strengthened by the original description of *tephronotus* which states that the back is gray, the tail brown and implies that the white wing-spot is absent. These characters are valid for the Tibetan bird but not for the Lahul population. It is doubtful whether Vigors would have applied the name *tephronotus* (=gray-backed) to the Lahul population.

(4) Stuart Baker had already restricted the type locality of *L. tephronotus* to Gyantse, Tibet, which is in the breeding range of the Tibetan Shrike. This action definitely tied the name *tephronotus* to the Tibetan Shrike. Admittedly the type specimen of *tephronotus* cannot have been collected at Gyantse which around 1830 was quite inaccessible. Stuart Baker, after many years of residence in India, was surely fully aware of this. His full restriction of the type-locality reads: 'Himalayas, Gyantse, Tibet,' which may be interpreted to read: 'Winter visitor to the foothills of the Himalayas, typical breeding population at Gyantse, Tibet.' The rules of nomenclature state nothing about the selection of type localities, but it seems that it should be permitted to suggest a breeding range type locality for a bird that was described from its winter quarters. However, to avoid any possible criticism I shall rephrase Stuart Baker's wording and hereby fix the type-locality of *L. tephronotus* as follows: 'Foothills of the Himalayas near Darjeeling, where breeding birds of the Gyantse district may be expected to winter.' In view of the proven composite nature of the Vigors-Gould collection, Baker's restriction of the type-locality of *L. tephronotus* to the eastern Himalayas cannot be rejected, even though other parts of that collection came from the western Himalayas.

The shift of the name *tephronotus* was not accepted by Dunajewski in his revision of the *Lanius schach* group (1939, *Jour. Ornith.*, 87, p. 38) nor by the majority of the other non-British authors. Retention of the name *tephronotus* for the Tibetan Shrike, to which it has been applied by the majority of authors since 1831 therefore does not cause any confusion, as would the shift of this name to the Lahul population as proposed by Whistler and Kinnear.

The application of the name *tephronotus* to the Tibetan Shrike leaves without a name the Lahul population to which Whistler and Kinnear had transferred the name *tephronotus*. However, Dunajewski states that this population is but little distinct from *erythronotus* and that the name *L. jourotus* Hodgson may be available for it (1939, *J. Ornith.*, 87, p. 38).

Whether or not *Lanius tephronotus* Vigors is a distinct species still seems to be an open question. In the east where *tephronotus* and *schach tricolor* meet, there is no sign of intergradation. However, this may be due to a vertical gap between the ranges of the two forms. In the west, it is stated by Whistler and Kinnear (op.cit., p. 336) that there is a complete intergradation between *erythronotus* and the Tibetan Shrike. This is denied by Dunajewski (op. cit., pp. 30-35). A renewed study of the shrikes of Garhwal, Kumaon, West Nepal and the adjoining districts of Tibet will surely decide this point. It is quite possible that these shrikes present another case of circular overlap of races, and that *tephronotus* acts with *schach* like a good species in the eastern Himalayas, but intergrades with it in the western Himalayas. It is significant that among all the races of *schach* the one which is morphologically most similar to *tephronotus*, namely *erythronotus*, is also the only one which, like the Tibetan Shrike, has become adapted to the high mountains.

NOTES ON A COLLECTION OF BIRDS FROM MADRAS PRESIDENCY [1]

BY

WALTER KOELZ

In 1937 I spent from January 21 to March 27 in Madras Presidency on a botanical mission. During a part of this period I was able to devote my spare time to making a collection of birds. The principal localities and dates for such collections follow: Mahendra Giri and environs (now in Orissa Province) January 21-30; Ellore, February 2; Nilgiri Hills (crest) February 14-21; Palni Hills (crest), March 10-15; Nilambur, February 23 and March 3-6; Malabar Coast: Tellicherry, February 25; Kasargod, February 27; Mangalore, March 1; Kodur, March 18, 19; Cuddapah, March 19, 20; Sidhout, March 20-23; Hospet, March 24, 25.

In the series of papers on 'The Vernay Scientific Survey of the Eastern Ghats' (Ornithological Section) by Hugh Whistler, assisted by N. B. Kinnear, beginning in the *Journal of the Bombay Natural History Society*, Vol. xxxv, p. 505, and ending in Vol. xxxix, p. 463, has been given a resumé of the existing data on the occurrence and distribution of birds in Madras Presidency.

The present collection has yielded data on species not given in this resumé and on many forms of which, up to now, there have been but few records in the area under consideration.

The specimens referred to are preserved in my collection.

Dendrocitta formosae sarkari Kinnear and Whistler.

A male was taken January 23, 1937 on Mahendra Giri, W 139 mm.

Dendrocitta vagabunda parvula Kinnear and Whistler.

A female taken at Nilambur, March 5', W 134 mm.

Dendrocitta vagabunda vernayi Kinnear and Whistler.

Male taken at Sidhout, March 22, W 151 mm. Female taken at Kodur March 18, W 144 mm.

Dendrocitta leucogastra Gould.

Common at Nilambur where four were taken February 23, March 4 and 5, W 3 ♂ 142-149, ♀ 146 mm.

Parus major stupae Koelz.

Three ♂ and two ♀ were taken at Ootacamund, February 14 and 16.

Machlolophus xanthogenys aplonotus (Blyth).

Three specimens were taken on Mahendra Giri, January 24, 25.

Machlolophus xanthogenys travancorensis Kinnear and Whistler.

Three specimens were taken at Kodaikanal, March 10, 11.

---

[1] The manuscript of this useful paper was received in 1939 just before the War started. The undue delay in its publication is regretted. The editors take no responsibility for the several new races introduced by the author. The last word on the validity of many of them has yet to be said. Readers are referred to the comments of the late Hugh Whistler on some of these new Indian races (described by Dr. Koelz in *Proc. Biol. Soc., Washington*, 52, June 5, 1939, pp. 61-82) in Vol. xliii of the *Journal, B.N.H.S.*, pp. 33-38—EDS.

Sitta frontalis simplex Koelz.

Specimens taken: Mahendra, January 24, 25, ♂, 2 ♀♀; Ootacamund, February 14, 16, 2 ♂♂, 3 ♀♀; Kodaikanal, March 10, ♀.

Trochalopteron cachinnans cachinnans (Jerdon).

Three specimens were taken at Ootacamund, February 14, 16.

Trochaloteron jerdoni fairbanki Blanford.

Common at Kodaikanal where 6 specimens, W 88-91 mm., were taken March 10-14.

Turdoides griseus griseus (Gmelin).

Male taken at Coimbatore, February 11, W 109.5 mm.; and at Sidhout, March 21, W 106 mm.

Turdoides somervillei terricolor (Hodgson)

Female, W 102 mm., was taken on Mahendra Giri on January 22; and a ♂ W 102.5 mm., at Kodur, March 18.

Turdoides somervillei malabaricus (Jerdon)

A female W 106 mm., was taken at Nilambur on February 23.

Crateropus caudata caudata (Dumont).

Three males were collected at Cuddapah, March 19, W 73-81 mm., and one at Hospet, March 25, W 76 mm.

Crateropus malcolmi (Sykes).

Two juveniles taken at Hospet, March 24 and 25.

Pomatorhinus horsfieldi horsfieldi (Sykes).

Common on Mahendra Giri were 4 adults: 3 ♂♂ W 88-96.5, ♀ 91 mm., and 2 juveniles were taken on January 23 and 24.

Pomatorhinus horsfieldi travancoreensis Harington.

Common in the Palnis and Nilgiris. Specimens collected: Ootacamund, February 14-16, 2 ♂♂ W 99, 100.5, ♀ 94 mm.; Kunjapani, February 20, ♂♂ 99 mm.; Nilambur, March 4, ♂ 97 mm.; Kodaikanal, March 10-14, 5 ♂♂ 92-97 mm., and 2 juveniles.

Dumetia hyperythra hyperythra (Franklin).

2 ♂♂ W 53, 55 mm., were taken on Mahendra Giri on January 23, 24.

Dumetia hyperythra albogularis (Blyth).

A female, W 55 mm., was taken at Sidhout on March 22.

Chrysomma sinensis hypoleuca (Franklin).

Specimens taken: Saba, January 27, ♂ W 65 mm.; Kodur, March 8, W 67 mm.; Sidhout, March 21 and 22, 3 ♂♂ W 67.5-71, ♀ W 61.5 mm.; Hospet, March 25, ♂ 69 mm.

Pellorneum ruficeps ruficeps Swainson.

Four males were taken on Mahendra Giri on January 24 and 25, W 70-74.5 mm.; and one at Kunjapani, February 20, 1937, W 74 mm.

Mixornis gularis rubricapilla (Tickell).

A pair was taken on Mahendra Giri on January 25, W 59, 60.5 mm., and a ♂ at Bengasai next day, W 60 mm.

Alcippe poioicephala poioicephala (Jerdon).

4 males, W 67-72 mm., were taken at Kunjapani on February 20.

Alcippe poioicephala brucei (Hume).

Specimens taken on Mahendra Giri are like specimens from Londa, Bombay Presidency. Wings measure: 4 ♂♂ 69.5-71.5; 2 ♀♀ 70 mm.

Rhopocichla atriceps atriceps (Jerdon).

A pair was taken at Kunjapani on February 19 and 20; and at Nilambur on March 3. Wings measure 53 (juv), 56 and 55·56 mm., respectively.

Aegithina tiphia humei Stuart Baker.

Specimens taken: Mahendra, January 22, ♂ W 64.5 mm.; Bengasai, January 26, ♂ and ♀ W 65, 64 mm.; Rati, January 29, ♂ W 66.5, ♀ 64 mm.; Kunjapani, February 20, ♂ W 64 mm.; Mangalore, March 1, 2 ♂♂ W 64 mm.; Nilambur, March 6, ♂ W 63.5 mm.; pair at Kodur, March 18, W 64, 65.5 mm.; Cuddapah, March 20, ♀ W 65 mm.; Hospet, March 25, ♂ W 63.5 mm.

Chloropsis aurifrons davidsoni Stuart Baker.

Specimens were taken: Mahendra Giri, January 22, ♂ W 92 mm.; Bengasai, January 26, 2 ♀♀ 84.5, 85 mm.; Nilambur, March 3-5, 2 ♂♂ W 87, 91, 2 ♀♀ 83.5, 84 mm.; Kodur, March 18, ♂ W 90 mm.

I have skins of 2 pairs from Nilambur, probably topotypical *davidsoni*, that measure ♂♂ 87, 91, ♀♀ 83.5, 84 mm. Whistler and Kinnear (*J.B.N.H.S.*, xxxv, p. 751) separate their race *insularis* of Ceylon on the grounds of having shorter wing than *davidsoni* of Malabar and give measurements 6 ♂♂ 91-94; 3 ♀♀ 87.5-88.5 mm. They apparently should have named the race of which they list specimens from Shevaroy Hills, Palkonda Hills, Nallamalai Hills and Anantagiri, all in Madras Presidency, with wing measurements 6 ♂♂ 95-101.5; 4 ♀♀ 91.5-95 mm. Strangely I have 3 birds from Mahendra Giri, a little north of Anantagiri that measure ♂ 92, ♀ 84.5, 85 mm.

Microscelis psaroides ganeesa (Sykes).

Common at Ootacamund and Kodaikanal, where 2 ♂♂, W 118, ♀ 112 mm., and 3 ♀♀ W 110-113 mm., were taken February 14 and March 10-14, respectively.

Molpastes cafer cafer (Linnaeus).

A ♀ W 85.5 mm., was taken at Kunjapani on February 19; and a juvenile at Nilambur, March 3.

Molpastes cafer saturatus Kinnear and Whistler.

Specimens taken: Bengasai, January 26, ♂ W 99 mm.; Kodur, March 18, 2 ♂♂ W 96, 98, 2 ♀♀ 90, 91 mm.; Cuddapah, March 20, ♀ W 90 mm.; Hospet, March 24, ♂ W 97.5 mm.

Otocompsa jocosa fuscicaudata (Gould).

Specimens taken: Ootacamund, ♀, February 14; Nilambur, 2 ♂♂, March 2, 3; Kodaikanal, 4 ♂♂ and a ♀, March 10-14.

Iole icterica intensior Koelz.

Three specimens were taken at Kunjapani on February 19 and 20; and one at Kodaikanal, March 15.

Pycnonotus gularis (Gould).

2 ♀♀ W 73.5, 79.5 mm., were taken at Nilambur, March 3, 5.

Pycnonotus luteolus luteotus (Lesson).

Common in the vicinity of Mahendra Giri and specimens were taken: Bengasai, January 26, 2 adult males, W 90.5, 93 and a pair of juveniles; Rati, January 29, ♂ W 87 mm.; a juvenile female was taken at Nilambur, March 5.

Microtarsus poioicephalus (Jerdon).

A ♀ W 75 mm., was taken at Kunjapani on February 20; and a ♂ W 78.5 mm., at Nilambur on March 2.

Tarsiger brunnea brunnea (Hodgson).

4 ♀♀ W 73.5-76, were taken on Mahendra Giri, January 22-24; and one W 73 mm., February 14 at Ootacamund.

Saxicola caprata caprata (Linnaeus).

♂ taken at Hospet on March 25.

Saxicola caprata atrata (Kelaart).

Specimens taken: Ootacamund, February 16, 2 ♂♂ W 76; 3 ♀♀ 72-74 mm.; Kodaikanal, March 10-14, 2 ♂♂ W 81, 2 ♀♀ 74 mm. Two ♀ from Tellicherry, February 25, are smaller, W 69 mm., and intermediate with *rupchandi*.

Phoenicurus ochrurus rufiventris (Vieillot).

A ♂ W 87 mm., was taken at Rati, January 29.

Calliope calliope (Pallas).

A ♀ W 76 mm., was taken on Mahendra Giri, January 25.

Saxicoloides fulicata intermedia Whistler.

Specimens were taken: Mahendra, January, 26, ♂ W 73 mm.; Rati, January 27, 28, 2 ♂♂ W 72, 74 mm.; Kodur, March 18, 2 ♂ W 74, 76, ♀ W 72 mm.; Hospet, March 25, ♂ W 78 mm.

Copsychus saularis saularis (Linnaeus).

Specimens taken: Rati, January 27, ♀ W 96.5 mm.; Kunjapani, February 19, 21, ♂ W 104.5, ♀ 96 mm.; Mangalore, March 1, ♂ W 100 mm.

Kittacincla malabarica malabarica (Scopoli).

Males were taken: Kunjapani, February 20, 21, W 98.5, 99; Kodur, March 18, W 88 mm.

Turdus simillimus simillimus Jerdon.

Three ♂♂ W 131-134, ♀ 127 mm. taken at Ootacamund, February 14-17.

Turdus simillimus bourdillioni (Seebohm).

3 ♂♂ W 120-125, 3 ♀♀ 125-129 mm., taken at Kodaikanal, March 10-14.

Turdus simillimus mahrattensis Kinnear and Whistler.

Two ♀♀ W 120, 121 mm., taken at Nilambur, March 3, 4.

Turdus simillimus spencei Kinnear and Whistler.

♂ W 130.5 mm., taken on Mahendra Giri, January 24.

Turdus unicolor Tickell.

A ♀ W 118 mm., was taken on Mahendra Giri, January 23.

Geokichla citrina cyanotus (Jardine and Selby).

A ♂ W 112 mm., was taken on Mahendra Giri, January 25; at Nilambur, March 3-6, 2 ♂♂ W 109-110, 3 ♀♀, 103-109 mm.

Oreocinclila dauma neilgherriensis Blyth.

A ♀ W 127 mm., was taken at Ootacamund, February 16.

Monticola cinclorhyncha (Vigors).

Specimens taken: Mahendra Giri, January 22, 25, 2 ♂♂ W 103, 104, ♀ 101 mm.; Kunjapani, February 19, ♂ W 105, ♀ 100.5 mm.

Monticola solitarius pandoo (Sykes).

Two ♀♀ W 117, 118 mm., were taken on Mahendra Giri, January 24, 25.

Mophonus coeruleus horsfieldii Vigors.

Specimens were taken at Nilambur, March 3.

Muscicapula superciliaris astigma Hodgson.

A ♀ taken on Mahendra Giri, on January 22, W 62 mm. One taken on the 23 and one on the 24, W 59, 61.5 mm., are of the typical race.

Cyornis pallipes pallipes (Jerdon).

Specimens collected: Kunjapani, February 19, 21, 2 ♂♂ W 76.5, 77.5 mm.; Kodaikanal, March 10, 15, 3 ♂♂ W 77-78 mm.

Cyornis rubeculoides rubeculoides (Vigors).

Specimens collected: Kunjapani, February 19, ♂ W 72.5 mm.; Nilambur, March 3, 2 ♂♂ W 72.5, 77 mm.

Eumyias albicaudata (Jerdon).

Specimens taken: Ootacamund, February 14-16, 2 ♂♂ W 79, 81.5, 4 ♀♀ 75-78 mm.; Kodaikanal, March 10-12, ♂ W 82, 2 ♀♀ 76, 78.5 mm.

Eumyias thalassina thalassina Swainson.

Specimens taken: Mahendra, January 23, W 79; Kunjapani, February 19, 20, 2 ♂♂ W 82, 84, ♀ 80 mm.

Alseonax latirostris poonensis (Sykes)

Specimens taken: Kunjapani, February 20, ♂ W 70 mm.; Tellicherry, February 25, 2 ♂♂, W 71.5, 73.5 mm.; Nilambur, March 4, ♂ W 75 mm.

Ochromela nigrorufa (Jerdon).

Common at Ootacamund and Kodaikanal. Four specimens from each locality: W 2 ♂♂ 63, 2 ♀♀ 57, 58; 3 ♂♂ 61-63.5, ♀ 55.5 mm., respectively.

Culicicapa ceylonensis ceylonensis (Swainson).

Specimens collected: Mahendra Giri, January 25, ♂ W 64 mm.; Ootacamund, February 14, 2 ♂♂ W 64, 67.5, ♀ 60.5 mm.; Kodaikanal, March 10-13, 3 ♂♂ W 60-65, ♀ 60.5 mm.

Tchitrea paradisi paradisi (Linnaeus).

Specimens taken: Kunjapani, February 20, ♂ W 97.5 mm.; Mangalore, March 1, ♀ W 91 mm.; Nilambur, March 5, ♂ W 92.5 mm.

Hypothymis azurea sykesi Stuart Baker.

Specimens taken: Bengasai, January 23-26, 3 ♂♂ W 71, ♀ 68 mm.; Kunjapani, February 19, 20, 3 ♂♂ W 64.5-69.5, ♀ 71 mm.; Mangalore, March 1, ♀ W 70 mm.; Nilambur, March 2-4, 2 ♂♂ W 68, 73, ♀ 70 mm.

Leucocirca aureola compressirostris Blyth.

Two ♂♂ W 80, 86 mm. and a ♀ W 76.5 mm. were taken at Sidhout, March 20-22.

Leucocirca pectoralis vernayi Kinnear and Whistler.

Specimens taken: Mahendra Giri, January 23, 24, ♂ W 77, ♀ 72.5 mm.; Kodur, March 18, ♀ W 70.5 mm.; Hospet, March 25, ♀ W 70.5 mm.

Lanius vittatus Valenciennes.

Specimens taken: Rati, January 27, 30, ♂ W 87, ♀ 84.5 mm.; Cuddapah, March 20, ♀ W 81.5 mm.; Sidhout, March 21-23, 4 ♂♂ W 82.5-87, 2 ♀♀ 83, 84 mm.

Lanius schach caniceps Blyth.

Specimens taken breeding: Ootacamund, February 15-17, 3 ♂♂ W 88-97, ♀ 93 mm.; Kodaikanal, March 10, 2 ♀♀ W 87, 90.5 mm.; Nilambur, March 3, 4, 2 ♂♂ W 91.5, 92.5 mm. Other specimens: Kodur, March 18, ♂ W 91 mm.; Sidhout, March 22, ♂ W 92 mm.; Hospet, March 24, 25, ♂ W 88.5, 2 ♀♀ 88, 93.5 mm. This is a well-marked race.

Lanius cristatus cristatus Linnaeus.

Specimens taken: Nilambur, March 3, 4, ♂ and ♀ W 87 mm.; Kodaikanal, March 11, ♂ W 86 mm.

Lanius cristatus phoenicuroides (Schalow).

A specimen was taken on Mahendra Giri, January 23, ♂ W 86.5; and at Bengasai, January 26, ♀ W 83.5 mm.

Lanius excubitor lahtora (Sykes).

Specimens taken: Cuddapah, March 19, ♀ W 106.5 mm.; Sidhout, March 21, 22, 2 ♂♂ W 106.5, 107.5 mm.

Hemipus picatus picatus (Sykes).

At Ootacamund on February 14, 15, were taken 3 ♂♂ W 63, 2 ♀♀ 63, 65 mm. (one female laying); and at Kunjapani, February 19, a male W 63 mm.

Tephrodornis gularis sylvicola Jerdon.

Specimens taken: Kunjapani, February 19, 21, 2 ♂♂ W 116, 117, 2 ♀♀ 116 mm.; Nilambur, March 3, ♀ W 121 mm.

Tephrodornis pondicerianus pondicerianus (Gmelin).

Specimens taken: Kodur, March 19, ♂ W 84 mm.; Cuddapah, March 20, ♀ W 84 mm.; Sidhout, March 22, ♂ W 86, 2 ♀♀ 84, 85.5 mm.; Hospet, March 24, ♂ W 87 mm.

Tephrodornis pondicerianus wareí Koelz.

Two ♂♂ W 86.5, 89 mm., in rather worn plumage taken at Mangalore on March 1, appear to be of this form.

Pericrocotus flammeus (Forster).

At Kunjapani, February 19, 20, were taken 4 ♂♂ W 92-93, ♀ 93 mm.

Pericrocotus cinnamomeus cinnamomeus (Linnaeus).

A pair was taken at Kunjapani, February 19, 20, W 71, 69 mm.

Pericrocotus cinnamomeus malabaricus (Gmelin).

At Nilambur, March 3, 5, were taken ♂ W 71, 2 ♀♀ 68, 71 mm.

Pericrocotus cinnamomeus sidhoutensis Koelz.

Specimens taken: Kodur, March 18, ♂ W 65.5, ♀ 65 mm.; Sidhout, March 21-23, 3 ♂♂ 65.5-67, ♀ 65.5 mm.

Lalage sykesi sykesi Strickland.

Specimens taken: Ootacamund, February 14, ♂ W 103 mm.; Nilambur, March 3, ♀ W 102.5, March 5, ♂ 98.5 mm.; Kodur, March 18, 19, 2 ♂♂ W 104, 105.5 mm.; Sidhout, March 21, 22, ♂♀ W 102, 104 mm.; Hospet, March 25, ♂ W 103 mm.

Graucalus javensis macei Lesson.

A female W 163 mm., was taken at Mandasa on January 21; and a male W 159, 2 ♀♀ 157, 159 mm., at Kunjapani, February 19, 20.

Dicrurus macrocercus peninsularis Ticehurst.

A female W 134 mm., was taken March 1 at Mangalore; and a pair March 21, 22, W 146, 137 mm., at Sidhout.

Dicrurus coerulescens coerulescens (Linnaeus).

A female W 121 mm., was taken at Kunjapani, February 19.

Dicrurus longicaudatus longicaudatus (Jerdon).

Specimens taken: Mahendra Giri, January 23, 24, 4 ♂♂ W 137.5-144 mm.; Kunjapani, February 14, 21, ♂ W 136 mm.

Chaptia aenea malayensis Blyth.

Four ♂, W 115.5-121 mm., were taken at Kunjapani on February 20; and one at Nilambur, March 2, W 118.5 mm.

Dissemurus paradiseus malabaricus (Latham).

A male was taken at Nilambur, February 23, W 155 mm.

Acrocephalus dumetorum Blyth.

Specimens taken: Mahendra Giri, January 23, 24, 2 ♂♂, ♀; Bengasai, January 26, ♀; Rati, January 29, ♀; Ootacamund, February 16, 2 ♂♂, ♀; Kunjapani, February 19, 20, 2 ♀♀; Nilambur, February 23, March 2 and 3, 4 ♀♀; Kodaikanal, March 10, 11, ♂♀.

Acrocephalus agricola agricola Jerdon.

A female W 60 mm., was taken at Ellore, February 2.

Orthotomus sutorius sutorius (Forster).

Specimens taken: Kunjapani, February 19, 21, 3 ♂♂. Two males taken at Nilambur, March 2, 5 are intermediate with the next.

Orthotomus sutorius londae Koelz.

3 females taken at Mangalore, March 1; a male taken at Kodur, March 18; a female at Cuddapah, March 20; and 3 ♂♂ on Mahendra Giri, January 25, 26 are near this form.

Franklinia gracilis gracilis (Franklin).

Specimens collected: Bengasai, January 22, ♂ W 48 mm.; Kunjapani, February 20, ♀ W 44 mm.; Kodur, March 18, ♂♀, W 47, 45 mm.

Phragmaticola aedon aedon (Pallas).

Specimens taken: Bengasai, January 26, ♂ W 87 mm.; Nilambur, February 23, March 5, 2 ♀♀ W 80 mm.

Hippolais caligata rama (Sykes).

At Kodur, on March 18, were taken 2 males W 61 mm., 2=6-7; at Sidhout, March 22, ♂ W 56.5 mm., 2=7-8.

Sylvia hortensis jerdoni Blyth.

A male was taken at Rati on January 28.

Phylloscopus affinis (Tickell).

At Ootacamund, February 14-16, were taken 2 ♂♂ W 60, 61, 3 ♀♀ 55-61.5 mm.; and at Kodaikanal, March 11, a ♂ W 55.5 mm.

Phylloscopus inornatus humei (Brooks).

4 specimens taken on Mahendra Giri, January 24.

Phylloscopus nitidus nitidus Blyth.

A specimen was taken March 1 at Mangalore, W 64 mm.

Phylloscopus nitidus viridanus Blyth.

2 ♂♂ W 59, 60.5, ♀ 59 mm., were taken on Mahendra Giri, January 23, 24; and a ♂ W 63 mm., at Kodaikanal, March 10.

Phylloscopus magnirostris Blyth.

Two specimens were taken at Ootacamund, February 14, 15.

Phylloscopus occipitalis occipitalis (Blyth).

Specimens taken: Mahendra Giri, January 24, ♂; Kunjapani, February 19, ♂; Kodaikanal, March 12, ♂.

Seicercus burkii burkii (Burton).

A male was taken on Mahendra Giri, January 23.

Prinia socialis socialis Sykes.

Specimens were taken: Ellore, February 2, ♀ W 45.5 mm.; Sidhout, March 22, ♂ W 47, 2 ♀♀ 45, 47 mm.; Hospet, March 25, ♂ W 49.5 mm.

Prinia sylvatica sylvatica Jerdon.

Two males were taken at Sidhout, March 22, W 56, 60 mm.

Prinia sylvatica palniensis Koelz.

Three specimens were taken at Ootacamund, February 15, 16; and 3 at Kodaikanal, March 11-14.

Prinia sylvatica mahendrae Koelz.

3 specimens were taken on Mahendra Giri, January 23-25.

Prinia inornata inornata Sykes.

Specimens were taken: Ellore, February 2, ♀ W 45.5 mm.; Sidhout, March 21, 22, ♂ W 49.5, ♀ 46 mm.

Prinia inornata franklinii (Blyth).

A female W 53 mm., was taken at Kodaikanal on March 11.

Irena puella puella (Latham).

A male W 131 mm., was taken February 21 at Kunjapani.

Oriolus oriolus kundoo Sykes.

Specimens taken: Kunjapani, February 20, ♂ W 141 mm.; Nilambur, March 5, ♀ W 141 mm.; Sidhout, March 20, 21, 2 ♂♂ W 140, 142 mm.; Cuddapah, March 20, ♂ W 137 mm.

Oriolus chinensis diffusus Sharpe.

Specimens taken: ♂ W 151 mm., at Rati on January 29; ♀ W 153.5 mm., at Nilambur, March 5.

Oriolus xanthornus maderaspatanus Franklin.

Specimens collected: Mahendra Giri, January 23, ♀ W 129 mm.; Bengasai, January 26, ♂♀, 137, 128 mm.; Sidhout, March 22, ♂ 132 mm.

Temenuchus pagodarum pagodarum (Gmelin).

Specimens taken: at Saba, January 27, ♂ Mandasa, January 30, ♂; Nilambur, March 3, 5, ♂ breeding, ♀; at Cuddapah, March 19, ♀; Sidhout, March 21, 22, 3 ♂♂, 4 ♀♀; Hospet, March 25, ♂.

Aethiopsar fuscus mahrattensis (Sykes).

A male W 129 mm., was taken at Ootacamund, February 16; and a female W 124 mm., at Kodaikanal on March 10.

Lonchura striata (Linnaeus).

Three specimens taken at Mahendra, January 25, 26 are rather intermediate between the typical race and *acuticauda*. One taken at Kunjapani on February 20 is a juvenile and its status isn't clear. A female taken at Nilambur on March 2 appears to be *estriata*.

Lonchura malabarica (Linnaeus).

Three specimens were taken at Kodur on March 18.

Lonchura punctulata lineoventer (Hodgson).

A male was taken from a flock at Hospet, March 25.

Erythrina erythrina roseata (Blyth).

Specimens taken: Mahendra Giri, January 24, ♂♀, W 85 mm.; Ootacamund, February 14, ♂♀, W 86.5, 81.5 mm.; Kodaikanal, March 10, ♂ W 87 mm.

Gymnoris xanthocollis xanthocollis (Burton).

Three breeding specimens taken at Nilambur, March 4.

Passer domesticus indicus Jardine and Selby.

A male was taken at Ootacamund on February 18; and at Cuddapah March 20.

Riparia rupestris Scopoli.

A ♂ W 132.5 mm., was taken on Mahendra Giri on January 23.

Riparia concolor (Sykes).

A male was taken on Mahendra Giri, January 24, W 108.5 mm.; and a female at Hospet on March 24, W 105 mm.

Hirundo rustica gutturalis Scopoli.

A female was taken at Ellore, February 2, and at Sidhout, March 22, W in both 111 mm.

Hirundo javanica domicola Jerdon.

A female was taken at Ootacamund, February 16, W 105 mm.

Hirundo smithii filifera Stephens.

A male W 107 mm., was taken at Hospet, March 24.

Hirundo daurica nipalensis Hodgson.

Two specimens were taken at Bengasai, January 26.

Motacilla alba dukhunensis Sykes.

2 ♀♀ were taken at Kasargod, February 27, W 85 mm.

Motacilla maderaspatensis maderaspatensis Gmelin.

A male was taken at Nilambur, March 4.

Motacilla cinerea caspica (Gmelin).

A ♀ was taken at Ootacamund, February 15.

Anthus hodgsoni inopinatus Hartert and Steinbacher.

Specimens taken: Mahendra, January 24, 2 ♂♂; Ootacamund, February 14, 16, pair; Kodaikanal, March 14, ♂, 2 ♀♀.

Anthus nilghiriensis Sharpe.

Specimens taken: Ootacamund, February 16, 2 ♀♀ W 75, 76.5 mm.; Kodaikanal, March 10, 14, 5 ♂♂ W 77-81 mm.; 4 ♀♀ W 73-77 mm.

Anthus campestris godlewskii (Taczanowski).

Specimens taken; Rati, January 27, ♀ W 90.5 mm.; Tellicherry, February 25, 2 ♀♀ W 86.5, 88 mm.; Kodur, March 18, ♂♀, W 91, 87 mm.

Anthus rufulus malayensis Eyton.

Specimens taken: Mahendra Giri, January 24, pair; Rati, January 28, 30, pair; Ellore, February 2, ♂; Ootacamund, February 14, 16, 2 ♂♂, ♀; Kasargod, February 27, 2 ♂♂; Nilambur, March 4, ♀; Kodaikanal, March 14, ♂; Hospet, March 24, ♀.

Alaudo gulgula australis Brooks.

Specimens taken: Ootacamund, February 15, 16, 2 ♂♂ W 96, 102, ♀ W 90 mm.; Kodaikanal, March 10-14, 4 ♂♂ 95, 2 ♀♀ W 89, 90 mm.

Calandrella brachydactyla dukhunensis (Sykes).

9 ♂♂, 2 ♀♀, mostly molting, were taken at Ellore, February 2.

Mirafra cantillans bangsi Koelz.

4 specimens taken at Hospet, March 25.

Mirafra affinis Jerdon.

Specimens taken: Bengasai, January 27, 2 ♂♂ W 83, 84.5 mm.; Kasargod, February 27, 2 ♂♂ W 84, 86 mm.; Mangalore, March 1, ♂ W 84.5 mm.; Nilambur, March 5, ♂ W 89 mm.

Galerida malabarica malabarica (Scopoli).

4 specimens were taken at Tellicherry, February 25; and one at Mangalore, March 1.

Ammomanes phoenicura phoenicura (Franklin).

Specimens taken: Ellore, February 2, 2 ♂♂ W 107, 110, ♀ 100 mm.; Kodur, March 18, ♂ W 105 mm.; Sidhout, March 22, ♀ W 102 mm.; Hospet, March 25, ♀ W 107 mm.

Eremopterix grisea grisea (Scopoli).

Specimens taken: Mandasa, January 21, 3 ♂♂ W 75-78.5, 2 ♀♀ 75 mm.; Ellore, February 2, 2 ♂♂ W 74, ♀ 74 mm.; Coimbatore, February 11, ♂ W 76.

2 ♀ 73 mm.; Kodur, March 18, 5 ♂♂ W 73-77, 2 ♀ 74 mm.; Sidhout, March 21 juvenile; Hospet, March 24, ♂ W 76.5 mm.

Zosterops palpebrosa palpebrosa Temminck and Schlegel.

Three males were taken on Mahendra Giri on January 24.

Zosterops palpebrosa nilgirensis Ticehurst.

At Ootacamund, February 14, 16, 2 ♂♂ and a ♀ were taken; at Kunjapani, February 20, 3 ♂♂.

Zosterops palpebrosa palniensis Koelz.

5 specimens were taken at Kodaikanal on March 11, 12.

Cinnyris lotenia (Linnaeus).

2 ♂♂ were taken at Nilambur, March 2, 4.

Cinnyris asiatica brevirostris (Blanford).

A male was taken at Sidhout, March 22.

Cinnyris minima (Sykes).

A pair was taken at Kunjapani, February 19; and 3 ♂♂ at Nilambur, March 2-5.

Cinnyris zeylonica (Linnaeus).

Specimens taken: Mahendra, January 22, 26, ♂♀; Tellicherry, February 25, ♂; Kasargod, February 27, ♂; Nilambur, March 2-4, 3 ♂♂, ♀; Kodur, March 18 ♀; Sidhout, March 22, ♂, Hospet, March 25, ♂.

Dicaeum concolor concolor Jerdon.

5 specimens were taken at Ootacamund, February 16; 5 at Kunjapani, February 19, 20; 7 at Kodaikanal, March 10-15.

Dicaeum erythrorhynchos erythrorhynchos (Latham).

Specimens taken: Mahendra, January 22, 23, 2 ♂♂; Mangalore, March 1, ♂, 2 ♀♀; Kodur, March 18, pair; Hospet, March 25, ♀.

Piprisoma agile saturatior Koelz.

Two males, taken at Kunjapani, February 19, are near this form.

Pitta brachyura brachyura (Linnaeus).

Specimens were taken: Mangalore, March 1, 2 ♂♂ W 104, 108 mm.; Nilambur, March 4, ♂ 108 mm.

Picus chlorolophus chlorigaster (Jerdon).

Specimens taken: at Kunjapani, February 19, 20, 2 ♂♂, ♀; at Nilambur, March 3, ♀.

Dryobates mahrattensis mahrattensis (Latham).

A male W 103.5 mm., was taken at Kunjapani on February 19.

Dryobates hardwickii hardwickii (Jerdon).

At Kunjapani a ♂ was taken February 20, a ♀ on the 21st; at Nilambur a ♂ on March 5.

Brachypternus benghalensis puncticollis (Malherbe).

A male was taken at Mahendra on January 22.

Brachypternus benghalensis tehminae Whistler.

A female was taken at Mangalore, March 1.

Chrysocolaptes guttacristata socialis Koelz.

At Kunjapani, February 19-21, were taken ♂, 2 ♀♀.

Hemicircus canente cordatus Jerdon.

A pair was taken at Nilambur, March 5.

Vivia innominatus innominatus (Burton).

2 ♂♂, taken at Mahendra on January 22, 23, are near the typical form.

Iynx torquilla.

A female taken on Mahendra Giri, January 25, is like most Indian birds I have seen, intermediate between the typical race and *japonica*.

Thereiceryx viridis (Boddaert).

Specimens taken: Ootacamund, February 16, 2 ♀♀, W 99, 100.5; Kunjapani, February 19, 20, 2 ♂♂ W 104, 109, ♀ 107 mm.; Pittambi, February 23, ♂ W 102 mm.; Tellicherry, February 25, ♂ W 99 mm.; Mangalore, March 1, ♂ W 99 mm.; Nilambur, March 5, ♂ W 93.5 mm.

Xantholaema haemacephala indica (Latham).

Specimens taken: Bengasai, January 26, ♂; Kunjapani, February 19, ♀; Kodur, March 19, pair.

Hierococcyx sparverioides (Vigors).

A ♂ was taken at Ootacamund on February 16.

Hierococcyx varius (Vahl).

Specimens taken: Ootacamund, February 14, ♂ W 191.5 mm.; Kunjapani, February 19, 20, 3 ♀♀ W 183-190 mm.; Nilambur, February 23, 2 ♂♂ 184, 195 mm.

Cacomantis merulinus passerinus (Vahl).

A male was taken at Kunjapani, February 21, W 107 mm.

Penthoceryx sonneratii sonneratii (Latham).

A ♂ was taken at Bengasai on January 26, W 126 mm.

Eudynamis scolopaceus scolopaceus (Linnaeus).

A ♂ was taken at Rati on January 27; and a ♀ at Nilambur, March 5.

Rhopodytes viridirostris (Jerdon).

Two ♂ were taken at Nilambur, March 3, 6.

Centropus sinensis parroti Stresemann.

A male was taken at Saba on January 27; and a ♀ at Rati on the 29th.

Psittacula krameri manillensis (Bechstein).

A ♂ was taken at Cuddapah, March 20, W 165 mm.

Psittacula cyanocephala cyanocephala (Linnaeus).

Specimens taken: Mahendra, January 25, ♂; Kunjapani, February 20, ♀; Nilambur, February 23, ♂.

Psittacula columboides (Vigors).

A specimen was taken at Kunjapani, February 20.

Coryllis vernalis rubropygius Stuart Baker.

A male was taken at Kunjapani on February 20.

Coracias benghalensis indica Linnaeus.

A male was taken at Nilambur, March 5, and at Hospet, March 24.

Eurystomus orientalis orientalis (Linnaeus).

A male was taken at Nilambur, March 5.

Merops orientalis orientalis Latham.

Specimens taken: Mahendra, January 26, ♀; Rati, January 30, ♀; Sidhout, March 22, ♂.

Merops superciliosus javanicus Horsfield.

A female was taken at Ellore, February 2; and at Kasargod on the 27th.

Merops leschenaulti leschenaulti Vieillot.

Two ♂♂ were taken at Kunjapani on February 19; and one at Nilambur, March 3.

Alcemerops athertoni athertoni (Jardine and Selby).

A pair was taken at Kunjapani on February 20.

Ceryle rudis leucomelanura Reichenbach.

A ♀ was taken at Palasa on January 30.

Ceryle rudis travancoreensis Whistler.

A ♀ was taken at Nilambur on March 4.

Tockus birostris birostris (Scopoli).

Specimens taken: Saba, January 27, pair; Rati, January 28, pair; Hospet, March 24, ♀.

Tockus griseus griseus (Latham).

Two ♂♂ were taken at Nilambur, February 23, March 3.

Harpactes fasciatus malabaricus (Gould).

Two ♂♂ were taken at Kunjapani, February 20; and a ♂ and 2 ♀♀ at Nilambur, March 2-6.

Harpactes fasciatus legerli Koelz.

A male was taken at Mahendra on January 22.

Tachornis parvus batasiensis (Gray).

A male was taken at Rati on January 29, W 110 mm.; at Kunjapani on February 19, ♀ W 120. On 20th, ♂ 115 mm.

Caprimulgus macrourus atripennis Jerdon.

A male was taken at Kunjapani, February 20, W 179 mm.; and at Nilambur on February 23, ♂ W 175; on March 5, ♀ W 166 mm.

Caprimulgus asiaticus asiaticus Latham.

Specimens taken: Bengasai, January 26, 2 ♂♂ W 150, 151.5 mm.; Sidhout, March 22, ♂ W 141, ♀ 146.5 mm.

Strix indranee indranee Sykes.

A male was taken at Kunjapani, February 19, W 325 mm.; and one at Nilambur, March 3, W 328 mm.

Bubo bengalensis (Franklin).

A male W 351 mm., was taken at Sidhout on March 22.

Athene brama brama (Temminck).

A female W 157 mm., was taken at Saba on January 27.

Glaucidium radiatum malabaricum Sharpe.

At Nilambur, February 23, March 4-6, were taken 3 ♂♂ W 123-129, 2 ♀♀ W 127, 131 mm.

Ninox scutulata hirsuta (Temminck).

A male was taken at Nilambur on March 5, W 207 mm.

Falco chicquera chicquera Daudin.

A male was taken at Cuddapah, March 20.

Falco tinnunculus objurgatus (Stuart Baker).

A male was taken at Ootacamund, February 15; and a ♀ at Hospet, March 25.

Limnaëtops cirrhatus cirrhatus (Gmelin).

A female was taken at Bengasai, January 26, W 422 mm.

Butastur teesa (Franklin).

A female W 282 mm., Rati, on January 29.

Circus macrourus (Gmelin).

9 male W 338 mm.; was taken at Rati on January 29.

Accipiter badius dussumieri (Temminck).

Two females W 197, 201 mm., were taken at Sidhout, March 22.

Accipiter virgatus besra Jerdon.

A male in immature plumage was taken at Ootacamund, February 16, W 156 mm.

Pernis cristatus ruficollis (Lesson).

Specimens taken: Kunjapani, February 20, ♂ W 420 mm.; Mangalore, March 1, ♀ W 421 mm.; Nilambur, March 5, ♂ W 375 mm.

Treron phoenicopterus chlorigaster (Blyth).

2 ♀♀ taken at Mahendra on January 22, are near this form.

Treron bicincta bicincta (Jerdon).

A male was taken January 25 at Mahendra.

Columba elphinstonii (Sykes).

A male was taken at Ootacamund, February 16.

Streptopelia decaocto decaocto (Frivalszky).

A male was taken at Kodur on March 18, W 169 mm.; and at Sidhout on the 21st, W 165 mm.

Gallus gallus gallus (Linnaeus).

A female was taken on Mahendra Giri on January 24, W 210 mm.; common

Gallus sonneratii Temminck.

Specimens taken: Ootacamund, February 14, 16, pair; Nilambur, March 3, 2 ♀♀; Kodaikanal, March 14, ♀.

Galloperdix spadicea spadicea Gmelin.

Specimens taken: Mahendra, January 25, 2 ♂♂ W 150, 157 mm.; Nilambur, March 3-6, 2 ♂♂ W 149, 152, 2 ♀♀ 141, 149 mm. and a juvenile.

Perdicula asiatica asiatica (Latham).

A pair, taken at Bengasai on January 26, are probably of this race.

Metopidius indicus Latham.

A male was taken at Mandasa on January 26.

Charadrius dubius curonicus Gmelin.

A ♀ W 120 mm., was taken at Rati, January 28.

Lobipluvia malabarica (Boddaert).

A male was taken at Sidhout on March 22.

Scolopax rusticola indica Hodgson.

A specimen was taken at Ootacamund on February 16.

Capella gallinago (Linnaeus).

A ♂ was taken at Kasargod, February 27.

Egretta alba modesta (Gray).

A ♂ W 364 mm., was taken at Ellore on February 2.

Butorides striatus abbotti Oberholser.

A male W 171 mm., was taken at Nilambur, March 4.

Nettapus coromandelianus coromandelianus Gmelin.

Four specimens were taken at Ellore on February 2.

Anas querquedula Linnaeus.

Two males were taken at Ellore on February 2.

TWO NEW LOCAL RACES OF THE ASIATIC WILD ASS

BY

The late R. I. Pocock, F.R.S.,

(*Zoological Dept., British Museum, Natural History*).

The discovery of two local races of Asiatic Wild Asses requiring new names owing to their having been previously wrongly identified was one of the first and most interesting results of my examination of the skins and skulls of the five specimens of the race from Kutch, which, as announced by Sálim Ali (*Journ. Bomb. Nat. Hist. Soc.*, 46, pp. 472-477, 1946), were most generously presented to the British Museum by H. H. Maharao Shri Vijayarajji, when he learnt from the Society, through Mr. W. S. Millard on information I supplied, that the national collection possessed only a single example of this animal. The latter was kindly sent to me in 1940 by H. H. the Maharaj Kumar of Bikanir, as he then was, who procured it from Prince Madansinhjii of Kutch, the race being extinct, as he informed me, in Rajputana.

The scientific name of this race is *Microhippus hemionus khur*, originally described as *Equus khur* by Lesson in 1827. Its synonymy and distinguishing characters and my reasons for adopting the generic name *Microhippus* instead of *Equus* or *Asinus* for the Asiatic wild asses will be discussed in a future paper. In the present communication I propose to deal merely with the essential features in which the two new local races differ from the race still inhabiting Kutch, where it is strictly preserved by H.H. the Maharao. Additional details of these two will be also included in the aforesaid paper.

MICROHIPPUS HEMIONUS BLANFORDI subsp. nov.

(Blanford's Gor Khar)

Equus onager var. *indicus*, Blanford, Mamm. Brit. India p. 470, 1891 (in part; not *indicus* Sclater, 1862, which is a synonym of *khur*).

Locality of the type (Brit. Mus., 91.5.13.1): The Sham Plains, lat. 29°20′ N., long. 69°40′ E., formerly in E. Baluchistan but now included in Wazaristan.

Distribution: Unknown apart from the locality of the type.

Diagnosis: Distinguished essentially from the Gor Khar of Kutch (*M.h. khur*) by the noticeably greater inferior extension of the rather darker fawn tint of the upper side and the corresponding reduction of the white on the lower side of the head, neck and body; the rump-patch also is less extensive and more obscure. The winter coat in February is also fuller, longer and more wavy, especially on the spinal stripe where it is upstanding.

The skull, which is that of a mature but youngish female, with the facial sutures unfused, differs from that of *M.h. khur* of nearly the same age in its comparatively low crown, lacking the marked convexity of that area as exhibited for example by the skull of Sálim Ali's specimen No. 3 which approaches it more nearly in age. In that respect the skull of *M.h. blanfordi* resembles that of the Kiang (*M.h. kiang*).

In its coloration this new race closely approaches the Syrian and Mesopotamian race (*M.h. hemippus*); but the latter is a much smaller animal, with a strongly convex forehead.

The type and only known example of *M.h. blanfordi* was shot by W. T. Blanford in 1882. Not improbably the race is now extinct; but any information about the wild asses of Baluchistan would be most welcome.

MICROHIPPUS HEMIONUS BAHRAM subsp. nov.

(The Persian Gor Khar)

? *Equus onager indicus*, Lydekker, Novit. Zool. 11, p. 588, pl. xvii, 1904 (not *indicus*, Sclater).

Equus onager onager. Lydekker, Cat. Ung. Mamm. 5, p. 14, 1916 (not *onager* Boddaert and others).

Asinus hemionus khur. Schwarz, Zool. Garten, 2, p. 85-90, 1929 (not *khur* Lesson).

Locality of the type. (Brit. Mus., 10.7.12.2): Yezd, Central Persia, lat. 32°N., long. 55°E.

Distribution: Only known with certainty from the locality of the type.

Diagnosis: Resembling the Gor Khar of Kutch (*M.h. khur*) in the average proportions of the pigmented and white areas of the head, neck and body but differing in the luxuriance of the winter coat which is from 40 to 45 mm. long, thick and strongly curled, instead of 20 to 25 mm., comparatively thin and only slightly wavy; in the colour which is drabby, greyish brown, instead of sandy fawn; in the extension of the spinal stripe as a strong black line to the tuft of the tail; in the shorter chestnuts on the fore legs and in its narrower hoofs.

Of this race I have seen the flat skins of three specimens (10.7.12. 1-3) shot by R. C. Barker and E. J. Blackman at Yezd. Although undated, unmeasured, unsexed and without skulls, they are obviously in winter coat, are presumably adult, since they equal the Kutch skins in size, and are presumed to be females from the presence of a pair of well developed teats on each. Their individual variations will be described later.

In 1916 Lydekker entered these skins in his catalogue under *Equus onager onager*, although they disagree with all the descriptions of that race, including his own in 1904. In the typical Onager, which ranges as far south as Kaswin in Northern Persia, the white areas invade the upper part of the body, neck and head to a greater extent than in any other race. The Gor Khar, which Lydekker described and figured as *Equus onager indicus* was alleged to have been captured at Meshed in north-eastern Persia. I suggest that the illustration may represent *M.h. bahram* in summer coat; and I have no doubt that that conclusion is true of the wild ass Schwarz identified as *Asinus hemionus khur*, which was living in the Berlin Zoological Gardens and was shipped from Bushire. Although being in summer coat it differed from the winter skins of the Yezd series in its paler hue, it resembled them in the conspicuous extension of the spinal stripe to the tail-tuft, which is not the case in the skins from Kutch, and in the presence of a pronounced black rim above the hoofs such as is shown in the type of *M.h. bahram*, although it is fainter in another of the skins and absent in the third; being obviously a variable feature. It is undeveloped, however, in any of the skins of typical *M.h. khur* from Kutch.

REVIEW

AN INSECT BOOK FOR THE POCKET. By Edmund Sandars. Oxfo University Press. Price 10/6*d.* nett.

One of the difficulties facing the amateur entomologist has been the lack of any simple yet reasonably comprehensive handbook. 'An Insect Book for the Pocket' supplies this want with conspicuous success.

As there are over 20,000 species of insects in the British Isles obviously the author could not deal with more than a small proportion of them and one of the major problems of authorship was what to include and what to omit. That Major Sandars's selection of species has been judicious will be seen by anyone who studies the book. Except for such 'small' insects as are of outstanding interest or importance he has wisely confined his choice to 'large' insects, that is to insects of over 1 inch wing expanse and half an inch length for, as he states in his preface, small insects are generally only noticed when they get into our eyes and lose their interest as soon as they have been successfully wiped out. In addition he has included information about other creatures commonly referred to as 'insect' . . . Spiders, Woodlice and Centipedes.

Stress has been laid on habits and life history and only the essential characters have been included in the descriptions. There are, however, numerous coloured plates and the text is full of illustrations, almost all of which are life size. The descriptions of habits and life histories are very full and most interestingly written, there is a commendable lack of technical language, and, what is unusual in a book of this type, the author frequently displays a keen sense of humour.

Whether there is any particular virtue in the literal translations the author has given for specific and generic names I doubt, though it is possibly entertaining to know that *Calliphora vomitoria* (the Large Bluebottle) means the Emetic Beauty-bearer and that *Ilyocoris cimicoides* means the Buglike Mudbug!

Although this little volume is small enough to fit very easily into the pocket, it should not be thought that its contents are of the same stature. Its 350 pages of small print contain a vast mass of information, much of which will be useful to students in India as many of the species are closely allied to insects found in this country.

M. A. W-B.

The following books have been added to the Society's library:—

1. CHECK-LIST OF THE BIRDS OF THE WORLD. Vols. I-V. By James Lee Peters (Harvard University Press, Cambridge, Mass.—1931-1945)

2. BIRDS IN THE GARDEN AND HOW TO ATTRACT THEM. By Margaret McKenny (University of Minnesota Press, Minneapolis—1939)

3. POISONOUS ANIMALS OF MALAYA. By M. W. F. Tweedie (Malaya Publishing House Ltd., Singapore—1941)

4. TREES OF INDIA. By Charles McCann (Taraporevala & Sons, Bombay—1946)

5. FAR RIDGES. By J. K. Stanford (C. & J. Temple Ltd., London—1946)

AN APPEAL

Egg Enquiry

Observations and experiments carried out in the Middle East during the War have shown: (*a*) that there is a wide variation in the palatability of the flesh of various birds; (*b*) that meat-eating animals, belonging to unrelated groups, such as the hornet, cat and man, show a general agreement in their preference for, or avoidance of, particular bird-species; and (*c*) that among birds otherwise liable to predatory attack, there is a general correlation between conspicuousness of the plumage and distastefulness of the flesh. Details of this research have been published—Cott, 1946. *Proc. Zool. Soc. London*, pp. 371-524.

I am now proposing to extend this work to an investigation of the palatable and bio-chemical properties of the eggs of birds. Preliminary investigations on some 25 British species again reveal wide variation in edibility, and have led to other interesting results which justify further work in an attempt to examine correlations which may exist between relative palatability of the eggs of various species on the one hand, and such factors as vulnerability, nest-site, clutch-size, shell-coloration and feeding-habits on the other.

Through the kindness of the Director, facilities are now available for the carrying out of rating-tests at the Low Temperature Research Station, Cambridge, where there is available a panel of experts with a trained 'egg-palate', who can give consistently reliable assessments on edibility; the results will subsequently be checked and compared by feeding-experiments with rats, hedgehogs and other egg-eating mammals.

For this purpose I am anxious to obtain examples of as many species as possible for comparative treatment. Material from overseas would be especially welcome. Eggs of any species, however common, would make a valuable contribution towards this enquiry. Of larger birds, such as ducks, ibises, etc., one or two eggs per species would be sufficient. In the case of smaller birds, the equivalent of a complete clutch, or say five or six eggs, would be preferred.

Any eggs submitted should be:—

(*a*) taken fresh from the nest, before the onset of incubation.

(*b*) identified in the field: it is not always easy or possible to be certain of identification from the egg alone.

(*c*) securely packed: the eggs should be well-wrapped separately in rolls of cotton-wool so as to prevent their working through the wrappings and coming into contact with one another, and enclosed in a box or tin sufficiently strong to withstand crushing.

(*d*) despatched by air mail (unless it is possible to arrange facilities for cold storage on sea passage), addressed as below, and covered by a note 'Natural History Specimens of no Commercial Value'.

University Museum of Zoology,
Downing Street,
CAMBRIDGE.
March 24, 1947.

DR. HUGH B. COTT.

[Giving further directions in a subsequent letter about the packing of eggs for transit by post, Dr. Cott writes—'Unblown eggs are most fragile and they do not stand up at all well to the knocks received in transit. The only safe way is to wrap each individual egg in *plenty* of soft cotton wool—about one inch in thickness all round is about right for small eggs—and to put outside the wool layer a wrapping of soft paper. This prevents the eggs from working their way through the wool wrapping and coming into contact with one another or with the sides of the box'. He suggests that, to start with, it would be as well to concentrate upon larger species, because it is doubtful whether Warbler-size eggs would stand up to the temperatures encountered during transit.—EDS.]

AN APPEAL TO BOTANISTS

I have been in correspondence with Sir William Wright Smith of Edinburgh. He is anxious for material of *Primula lacei* Hemsl St. Watt. This was found by J. H. Lace on 16 March 1888. Has it ever been found since? Localities are variously given as 'Quetta', 'Loralai' & 'Hamai', and 'Torkhan—alt. 4000'.

Have you any further information? It is yellow flowered and akin—apparently—to *P. floribunda* from which it differs in

(*a*) having farina on the leaves,
(*b*) lack of a flower-scape,
(*c*) length of coralla tube,
(*d*) the almost woody stem or rootstock.

It *may* be a form of *P. floribunda* or may even be a species of *Diapensia*. Anyhow more material is needed. Can you perhaps publish an appeal for material? There must be some members in the Zhob one would think. Material to be sent to you or me or direct to Edinburgh. Specimens of *P. floribunda* from Baluchistan (whence it is *not* recorded) and from Waziristan (where I have found it several times) are also wanted for comparison. The only actual locality for *P. floribunda* that I can give is on the wet cliff of the Baddar Toi just under (literally) Ladha Camp—1920. I should expect to find *P. lacei* if it grows at 4000 ft., in some similar place, i.e. where water oozes out of a cliff and where stunted maidenhair ferns occur commonly in those parts.

1718 T. U.
C/o Army P.O.,
Saharanpur,
June 3, 1945.

DONALD LOWNDES,
LT.-COL.

MISCELLANEOUS NOTES

1.—A MAN-EATING TIGER OF THE NELLIAMPATHY HILLS.

(*With a photo*)

Man-eating tigers are not common in western parts of South India, and are almost unknown to occur in the forests and mountains of the Western Ghats south of the Palghat Gap.

For more than 70 years previous to 1946 there was only one known instance—a solitary killing which was not repeated. (*B.N.H.S. Journal,* vol xxxii, page 209).

In March 1946 a woman was killed on the Seetagundy Coffee Estate and entirely eaten, and on 9th April another woman worker was killed but not eaten. After a lapse of 8 months a man was killed on 10th December on a path near the Estate Hospital. The body was taken uphill among coffee bushes and not eaten. One ear was found on the pathway at place of seizure. This seemed quite abnormal and why it happened was realized when the man-eater was killed.

It may be, perhaps, that these two bodies were not eaten, although the animal had time in each case to have at least consumed some portion of them, because they were not dragged into dense lantana or other jungle but among more or less openly planted coffee bushes. The man could have been easily dragged into near-by dense evergreen forest. All these killings took place after mid-day or in early afternoon.

It was not until mid-January I was able to go to the Seetagundy Estate, over 300 miles south of Bangalore. On the 14th February a woman was killed soon after midday on an open hillside six miles away on the Chandramalai Estate which is within the Cochin State.

Arriving at the place about 4 o'clock I was about to enter the lantana thicket by the tunnel through which the body had been dragged when a man close behind—the estate watcher, nervously let off his gun a pace or so behind me. I should have had the foresight to shoo him away. Fortunately the weapon was not pointing at me, but unfortunately the report sent the tiger off with a frightened *whoof,* and a golden opportunity was gone. The tiger would probably, almost certainly, have faced the cannon's mouth (.470), for previous to my arrival several men had been peeping and peering, and with some success. 'The tiger is there, he has eaten her head', and so it was: he would have thought me to be but another and bolder peeper: the field glasses would have detected him and a bullet beneath the chin ended the business before he decided to come or go.

In all lantana thickets there are larger or smaller spaces bare of the growth and it was in a narrow one the body lay, feet towards me, a short twenty feet inside. The watching tiger had been lying

close behind the shoulders in a very slight depression. The head had been munched off and part of left upper surface of body gnawed away. The skull photos show why such expressions used.

The lantana belt was fortunately not too broad at that place so an office chair machan was soon fixed in a not too distant many-branched tree at edge of the dense evergreen forest which lay behind. Meanwhile I secured the body by two wire ropes looped round slender waist and ankles, a heavy pole being passed through the lantana and loops at other ends and also tied to a distant sapling by a strong rope. Now the body could not be silently removed.

When the tiger returned after dark a near-fatal shot in the head anchored him close by until the morning when the arrival of a number of men roused him from his stupor to stagger to his feet and be put down by another bullet. Near where he had been lying was a mass of entrails vomited during the night, so he had evidently been scavenging near the estate slaughter house the previous night.

He was a very old animal. Limit of age in captivity appears to be 13 to 16 years. In a wild state tigers known to be twenty and having sound teeth have been killed. There seems no reason why such animals should not have lived for another five, or even ten years.

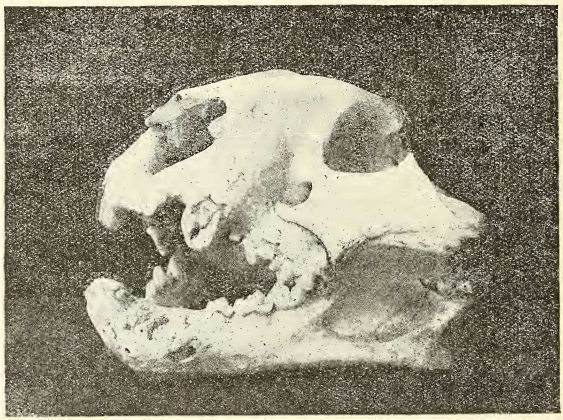
Except for the right upper carnassial (premolar) being decayed all the back teeth in upper and lower jaws are sound enough. The right lower canine is a mere stump and worn level with the front teeth, of which only four remain. The left lower canine is almost completely decayed away and part of the jaw on that side gone. It would seem that the lower front portion of the jaw never at any time properly and normally met the teeth of the upper jaw. The three canine stumps have large holes in their centres. The skull shows more than the usual signs of age, almost all the sutures being completely ossified.

Of all the teeth in the front portions of the jaws only two in the lower jaw function against the upper, and those not in proper position as the photograph shows.

It seems probable that both age and bad dentition led to his killing human beings, but his having been caught in a wire deer-snaring noose may have had something to do with it. Wounds caused by the wire were unhealed in places and contained maggots. The scar almost completely encircles the waist. How long may he have been in the noose without food and water? How long ago did it happen? and how did he get out of it? "He was a very clever animal, he used his hands" said one of the men.

The noosing may have been four to six months previous to the 15th February, and it is certain that somewhere in the Nelliampathies some of the workers on the estates have knowledge of it, for game-snaring nooses are visited for results and the animal would not have been less vocal than the 9 ft. 7 in. tiger caught in a noose in October 1927 which made 'Plenty big noise'. At that time two other tigers were killed in similar nooses. (Note by Mr. H. A. Boas in *B.N.H.S. Journal*, vol. xxxii, page 790).

This tiger weighed but 316 lbs, a good hundred short of normal for his 9 ft. 3 in. curves measurement. Chest 48 in., neck 27 in., waist 36 in. Owing to emaciation his paws looked enormous. The pad cushions were very hard with little fatty substance beneath them.



Skull of the Nelliampathy Maneater.

One can only conjecture why more people were not killed. Besides the four mentioned there was one other some distance to the east.

It was not for want of opportunity for at any time, all over the extensive tea and coffee estates which are interspersed with much dense cover, he could have easily secured two or three victims each week. So why an interval of 8 months between April and December, and another two months after that date?

BANGALORE,
30th March 1947.

R. W. BURTON, LIEUT.-COL.,
Indian Army (Retired).

2.—A TIGER 'RUNS AMOK'.

Christopher's query in the *Journal* (Vol. 46, No. 2) embraces many possibilities, but without details or facts, it is difficult to assign a reason or define the cause.

A young male tiger while courting will sometimes demonstrate to his spouse by killing 5 or 6 animals in a herd with no other intention but 'showing off'. What is done is probably done under the spur of sexual excitement during which these animals loosen

all the accustomed restraints. I have experience of this on two occasions: once in the C.P. when five full grown cows were killed, but the tigers did not return to feed. This incident took place at 2 p.m. and I was on the ground and sitting up at 4.30. The second occasion was in Burma when seven full grown beasts were killed, and although the tigers were present in the vicinity, made evident by the courting noises throughout the night and part of the next day, they also failed to return to any of the kills.

It is a precautionary measure in many parts of India to follow up a wounded tiger in a crowd, this is certainly practiced by Tharus, Gonds, Baighas and Kachins using primitive weapons.

How 7 coolies came to be killed must be to large degree rank carelessness. A tigress with a nest of newly born cubs, or if cubs have been killed or robbed will often throw caution to the wind especially if fired at or cornered, but in every case gives due warning with growls and demonstration.

It is most unlike a maneater, or even an ordinary tiger. The myth lies in the seven foolish coolies.

H.Q., Bombay Area, A. ST. J. MACDONALD.
Bombay,
1*st February* 1947.

3.—THE RETURNING TIGRESS.

About 3 weeks ago I was informed that a donkey had been killed about a hundred yards from our bungalow by a tiger. The kill was in a hollow on the side of a deep ravine. As the trees were too high I made a small hide in some bushes about 30 feet from the 'kill' on the opposite side of the ravine.

The only rifle available at the time was missing its foresight and also my torch batteries were almost flat, and, as is usually the case in an emergency, the shops had no spare ones.

As my friend was unwell at the time I decided to sit up on my own. I was in my 'hide' by 5.30 and must have dozed off because at about 9.30 I was awakened by a sound of bones being eaten. I am afraid I was a bit clumsy with the torch and rifle, one in each hand, and the result was that I did not get a shot at the perfect picture of the tigress on her kill that I saw in the dim light. She jumped off and disappeared in the jungle.

I decided that as she had had such a fright the odds of her returning were very small, and so I went home. After I had had some supper I thought I would go down and have a look just in case she had returned. I was still about 20 feet from my hide when I heard a loud crack of bones again.

I aimed at the sound and put on the light and there was the tigress. I aimed as best I could and fired. The result was a loud cracking in the jungle and I thought I had secured a bull but I thought it wiser to get home.

The following morning we had a good search and found that I had missed and the tigress had returned to her kill and had dragged

it about 10 feet and had eaten about three quarters of it. I then decided to sit up again for her as she might well return again. Thus the same evening I took up my position about 5 o'clock and waited. At about 8.30 I heard some footsteps *behind* me and then they went by to my right and paused in front of me in the ravine about ten feet away. I could hear the tigress breathing but could not see her because she was in the ravine. Presently after about ten minutes (it seemed much longer) I heard her drag her kill. I aimed at the noise and switched on and again I saw the tigress, and again I had a shot at her and by the noise there was afterwards I was certain of a hit.

Anyhow I came home. The following morning we had a search and found that I had missed her again and this time by a few inches as we found the bullet in a tree beside which she had been standing.

Then we discovered that she had returned again after I had fired at her and she had taken her kill another 30 feet and had eaten it all except for a few bits and pieces.

As there was nothing left to sit up over I decided to wait till she killed again. The following day a half eaten kill about 5 days old was found in a swamp near our factory. This was another donkey and it had been killed before the one that I sat up over.

About two weeks later we had news of a young bull which had been killed on a rocky bush covered hillside about 200 yards from the jungle and about $\frac{3}{4}$ mile from our bungalow. My friend had the first news and he set off at once but in this haste forgot the torch.

When I got home I found out about this and so I decided to take it out to him and to sit up with him.

We had previously decided that at the next kill it was his turn to shoot.

I shouted to him from the road which was about 200 yards below the kill, I did this to avoid being mistaken for the tiger in the failing light and shot in consequence.

When I reached him we took stock of the surroundings. The only place to sit was behind some low *Strobilanthes* bushes about 40 feet above the kill. The intervening space was fairly clear.

At about 6-30 we heard a sound which sounded like a sambhur belling though we were doubtful. After a few minutes we again heard the noise about 400 yards away and then we recognized it to be the tigress calling. After fifteen minutes or so we heard some monkeys making a lot of noise below the road and so we knew the tigress was going to come the way we expected her; so he trained the rifle on to the kill and I got ready with the torch.

You can imagine the fright we both got when the tigress suddenly let off a terrific cough about 20 feet away directly *behind* us. I very consciously looked round and I saw the tigress's head above the bushes and looking steadily at me and I was returning the stare wondering what I would do if she decided to spring down on us which she could easily have done. I nudged my friend and he had a look too but he withheld his fire as the bushes were in the way. The tigress then noisely came down the hill coughing all the time about ten feet away just the other side of the bushes through which we expected her to come at any moment. Then we presumed

that she was going straight down to her kill. Suddenly we heard loud footsteps just in front of us. I nudged my friend and put on the light. As my friend aptly said afterwards a wall of stripes stood before us and uncomfortably close (we measured the distance afterwards and found it was barely 2 yards). My friend pointed the rifle at the tigress's shoulder and fired. The tigress leapt high into the air and cantered down the hill with her tail straight up in the air like a frightened calf, and plunged blindly into the bushes. We were both certain she had been hit as it would have been impossible to miss at that range. Then we both decided that tiger shooting from the ground wasn't such an attractive sport as it had seemed previously, and so we both slithered down the steep hillside and keeping a careful watch in front and behind we went home as fast as we could.

The following morning we made a search and my friend found the tigress dead about fifty yards from where she had been shot at.

She was a fine animal in wonderful condition and measured eight feet ten inches.

When I was skinning her I found that she had about 25 porcupine quills in both her fore feet and in her chest. The biggest piece was two inches long. One of them had turned septic and must have hurt her when she walked. This was probably the reason for her taking to killing donkeys and cattle.

I must state here that the probable reason for the tigress not being frightened when I fired at her twice before, is that she was probably used to hearing rock being blasted all day long and so didn't bother much. Her cub which had been seen with her is still at large and has already attempted to kill a cow.

HIGHWAYS ESTATE,
CUMBUM P.O., A. F. HUTTON.
MADURA DIST.
22*nd March* 1947.

4.—WEIGHT OF BULL BISON.

A few years ago I gave details of weights of a few Bison, Sambhur, Tiger, Panther and Bear shot in this area. (S. India). The heaviest Bison then recorded was one weighing 1,900 lbs., shot in February 1937. I have since weighed (piecemeal) the largest bull Bison I have ever seen shot, on the 4th of March 1947. This animal weighed 2,071 lbs; in other words 1 ton less 169 lbs.

HONNAMETTI ESTATE,
ATTIKAN P.O., R. C. MORRIS.
VIA. MYSORE, (S. INDIA).
7th March 1947.

Since writing the above I am able to add the following:—

Two bull Bison which were shot on the 15th and 17th March 1947, weighed as follows:—

1,297 lbs. (Young bull).
2,049 ,, (Old ,,). R.C.M.

5.—NOTES ON THE BRUSH-TAILED PORCUPINE (*ATHERURA MACRURA* L.).

In May 1947 when in the outer ranges of the Naga Hills of Assam I saw in the house of a member of the Lhota Naga tribe four incomplete skulls of a rodent which I did not recognise as belonging to any species found in that area. I accordingly made enquiries as to their identity, and was given the following account of the animal:—

It is known as the *Tsetang*, and is described as being about the size of a hare, but more of the build of a porcupine, with a short tail, and ears 'shaped like a rat' but proportionately larger.

The *Tsetang* is essentially a forest dweller, and is found only in the flatter areas of the valleys and extreme foothills of the outer ranges of the Naga Hills. Nagas from the inner hills whom I questioned had never heard of it.

It lives in small colonies of six to eight (family parties?) in very long burrows, described as being 'too long to be worth the labour of digging out'. Although one area of forest may contain several such burrows they are said never to be close to one another.

I was taken to see a burrow at the foot of the hills. It was excavated in soft, sandy soil, and the entrance was about twenty-four inches across; but narrowed down considerably a short way in. Leading up to the entrance on each side was a well worn track with many footprints on it, some obviously quite fresh. They were those of a small-clawed animal, and although rather blurred I judged them to be about the size of a hare's. Not far away was a fallen, hollow tree, which had signs of occupation by some animal. I was told that it was used as a temporary shelter by the *Tsetangs*. The burrow was in thick rain-forest.

They are strictly nocturnal, and I was told that they never come out before dark, and are back in their burrows before daylight. By night the whole small colony roams together in search of food plants.

The note is said to be a chattering. They hibernate during the cold weather.

Within the small area I visited, the *Tsetang* is regarded as quite common, and not decreasing in numbers.

STONYLANDS HOTEL,
SHILLONG, ASSAM, C. R. STONOR.
15*th May* 1947.

[A skull of the rodent referred to in the note was sent to us by Mr. C. R. Stonor. It is that of a Brush-tailed Porcupine (*Atherura macrura* L.) EDS.]

6.—NATURAL DEATH OF ELEPHANTS.

Why 'natural'? The article under the above heading in the *Journal*, Vol. 46, No. 2, is of considerable interest.

The death of this elephant followed a severe injury received in a fight with another elephant. It would have been of value if the

bones had been examined. It looks as if either the shoulder or the elbow had got broken. In spite of Game Laws, etc., it is hoped that a kind bullet finished the suffering. I have been told that in Sanctuaries, Natural Reserves, etc. such is *not* allowed but I assured the authorities that if I did come across a case of real suffering and had my rifle with me that I would use it.

In July 1943 we were filming wild life in the Yala Strict Natural Reserve on the south-east coast of Ceylon. We were camped on the banks of the Kumbukkan Oya, the large river which forms the eastern boundary of the Reserve. This river has got several small islands, which in the dry season, May—September, make splendid observation posts from where any kind of animal and bird can be seen and watched. As a rule a 'hide' is not needed which is a great advantage as it leaves one free in one's movements when wanting to follow up possible subjects with the heavy cameras.

The best time to start is 3 p.m. and for an hour or more G. and I had been watching several herds of deer, buffalo and some elephants as they came down to the river to drink from the small pools and streamlet left in the bed. Nearest to us were a cow elephant and two youngsters, one a fine little tusker.

At about 5 p.m. a lone bull came wandering out of the jungle just in front of us from the direction of the small family group. There was nothing remarkable about this animal but some feet of colour film can always be useful, especially with the sun on him against the lovely green foliage background. When he came closer it was noticed that the organ was fully extended and that this remained so all the time we watched him.

On coming towards us, several times wandering about and moving, nothing out of the ordinary was noticed. The elephant appeared to be in good condition, age about 20, height 8 feet 6 inch to 9 feet. We had ample time to study him, as had our men, both experienced trackers. It did strike us that he was somewhat restless which—rightly or wrongly—I put down to the vicinity of the cow. Time and again he seemed to look at her although she must have been some 100 yards away. Several times he sniffed at the water but we did not see him drink.

The light was getting poor, anyhow it was no use wasting precious colour film on so simple a subject. We must have watched him for half an hour or more and took a few stills. Suddenly he started to move and came straight towards the tripod and cameras. We were smoking on the island's bank. When within a few feet of the cameras—we were just going to save—he turned and slowly walked past us to our left. Little did we then realise that we had been filming and watching till it got rather boring—a dying elephant.

Some 20 yards away, just near the bank of the river, he stopped and stood leaning against a tree and while we were watching he suddenly 'slid' down against the tree trunk to lie on his left side. This very unusual behaviour made me realise that all could not be well. It was exactly like a drunken man clasping a lamppost and then sitting down on the pavement!

After some ten minutes and as we got near, too dark to photograph and heavy shade overhead—the elephant managed to struggle

to its feet with considerable difficulty. For a while he stood looking very dazed and then very slowly wandered up the low riverbank into heavy jungle.

It was time to pack up and return to camp when—a sound like a deep and heavy moan, followed by a terrific crash just inside the jungle where the elephant had been seen to enter. We had no torches and it was too dark to follow.

Next morning the elephant lay dead, only eight or nine yards within the jungle. A deep fresh gash across the left cheek caused by a sharp broken sappling. How valuable a post mortem would have been. The dung was normal and fresh. It was not old age; while it is practically certain that this elephant did not die of any injury or an old shot wound. He fell miles away from any habitation or shooting ground. Of course this is no proof knowing how wounded elephants can and do travel for miles and even days but if he had been wounded it is difficult to believe that none of us four, with a fair knowledge of the jungle and elephants, would not have noticed it. Under the tree he was lying on his left side, he fell dead on his right side. The extended and somewhat swollen organ made us wonder if death perhaps was due to some sexual reason or damage.

The true reason will never be known, the strip of film is a sad souvenir. I am writing without my diaries but believe that this was the fourth or fifth wild elephant I have found dead where it was impossible to establish any kind of reason or proof unless an expert post mortem had been possible. I remember one small elephant—later on proved to have been shot at by field watchers a week or so before—lying dead in the centre of three jungle road junctions. As far as I could ascertain it had travelled a good ten miles to get here and meet the end. The wound in the neck, by a muzzle-loader from above, was a mass of inflammation and matter some six inches in diameter.

Twice I have come across dead elephants lying in a stream or river where it was impossible to make any investigations of any value. In both instances the dying animals had of course come to the water as their last hope.

The 'burial ground' idea, although romantic, is a myth as are so many of such ideas about the wilds. The wilds hold little romance where death is concerned.

Box 15, A. C. TUTEIN NOLTHENIUS,
COLOMBO, CEYLON, F.Z.S., A.C.L.
7th January 1947.

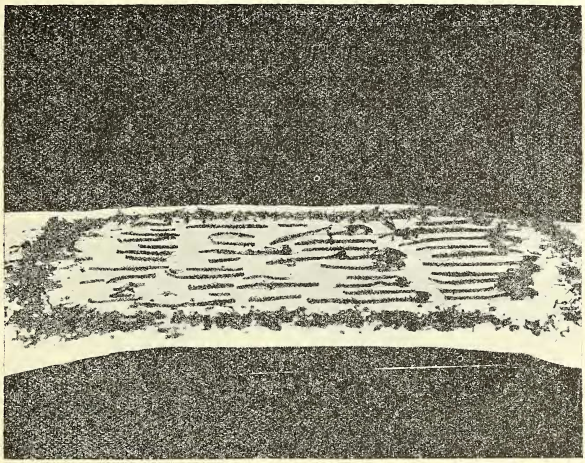
7.—THE PISCIVOROUS HABITS OF THE RORQUAL OR FIN WHALE (*BALAENOPTERA* SP.).[1]

Malabar fishermen affirm that schools of whales are commonly seen in the sea off the Malabar Coast. They come in pursuit of

[1] Published with the kind permission of the Director of Industries and Commerce, Madras.—Authors.

huge mackerel or sardine shoals. No effort is made to fish for them and these giants are seldom washed ashore. In fact there are only twelve recorded instances of whales having been stranded on this coast and these occurred within the past hundred years. Of these five were rorquals.

Recently, on the morning of the 28th January 1947, a Rorqual measuring 45 feet in length and 20 feet in girth was stranded at Naduvattam three miles south of Calicut pier. It was in an advanced state of decomposition, having been dead a few days before it was washed ashore. Behind the middle of the body all the flesh and viscera had been removed—probably bitten off by



A few mackerel skeletons from the stomach of the stranded whale

ravenous sharks or removed by nearby villagers. The vertebral column was intact.

The whale was pale black dorsally and ash coloured ventrally. Forty-two furrows could be counted on its ventral surface. The teeth were absent. The long thin bony plates characteristic of whalebone whales, called 'baleen plates' or 'whalebone' were very ill developed. One cannot be definite about this, as the mouth looked tampered with. The two nasal openings could be noted. The hand had four digits and all the other bones were intact. These characters are those of Fin Whales (*Balaenopteridae*).

Everything about this giant among the existing and extinct creatures, is interesting both from its huge dimensions and its rarity on this coast. Small wonder then that its malodorous carcass drew thousands of villagers who came to have a look at

what they called *Kadalana* in Malayalam, meaning 'Sea elephant'. But the most surprising and interesting fact had still to be revealed. The opening of its large stomach exposed the remains of hundreds of mackerels (*Rastrelliger kanagurta*), which the whale had devoured (see photo). About 500 complete skeletons were picked out, not counting the half digested mass yet to be reckoned with. It is almost sure that this creature had devoured more than a thousand mackerel. The undigestable lenses of the eyes of these fishes looking like coriander seeds could be picked up by thousands. It must be remembered that it was possible to examine only one of the chambers of the stomach. So it can safely be presumed, that this comparatively small specimen had swallowed a huge shoal of mackerels.

About the food of whalebone whales under which the Rorqual falls, Professor Adam Sedgwick writes: 'the gigantic whalebone whale which are without teeth but possess whalebone on the palate, feed on small floating marine animals, nudibranchiates, molluscs and jelly fish etc.' Frank Evers Beddard states that the interesting fact that the whales feed among swarms of pelagic creatures, which they engulf within their huge mouths, led the ancients to believe and assert that they feed on water only.

In a recent *Discovery* Report (1942) Dr. Mackintosh has reported in detail, on the food of whalebone whales in the Antarctic and warmer waters. The examination of the stomachs of several hundreds of these whales has proved beyond all doubt, that the Antarctic whalebone whales, mainly feed on shoals of a shrimp-like crustacean, *Emphausia superba*, collectively known as 'Krill'. The only recorded instance of an Antarctic whale, taking to a more substantial diet than Krill, was the case of a Blue Whale, examined on the 8th January 1938 by Major Spencer, which had consumed fifty 'ice fish' 9 to 12 inches long. According to Dr. Mackintosh, these whales which feed very heavily in Antarctic on Krill, are found to starve during their northward migrations to temperate coastal waters.

Perhaps in tropical waters the whalebone whales feed largely on fish or more likely, when in pursuit of minute floating plankton (krill), shoals of fishes, which themselves subsist on these plankton, are engulfed unintentionally. But intentionally or not, these whales and their cousins the dolphins and the porpoises, no doubt follow shoals of food fishes in schools and play regular havoc among them.

Our thanks are due to Dr. S. T. Moses, Director of Fisheries, Baroda for his kind suggestions.

Department of Fisheries, P. K. JACOB.
M. DEVIDAS MENON.
Baroda,
2*nd April* 1947.

8.—CURIOUS NESTING SITE OF THE MAGPIE ROBIN [*COPSYCHUS SAULARIS* (LINN.)]

With reference to Mr. Kingdon-Ward's note on the Magpie Robin in Vol. 46, No. 3 of the *Journal* it may be of interest to record that while I was posted at Dibrugarh in Assam in 1941 a pair of Magpie Robins nested in the back verandah of our bungalow there. This verandah was seldom used and at the most remote end was the electric light meter. This was enclosed in a fairly large wooden case attached to the wall. Originally there had been two meters in the box which was about 2 ft. 4 in. long and 14 inches wide by about 9 inches deep. The meters had been set on the wooden back of the case, one above the other; the upper one being intended for lights and the lower for power. Both meters had little glass covered spy holes opposite their dials. For some reason the lower meter had been removed and the glass in the spy-hole opposite it had been broken. One morning while having a look at the meter I noticed an old nest in the bottom of the box. I wondered what bird could have nested in this queer spot but without examining the nest very closely I removed it and threw it away. Later, about the middle of April I was surprised to see a Magpie Robin pop out of the box. I examined it and found a partially built nest. Later eggs were laid and incubation commenced. Then something went wrong and the eggs disappeared. Later—it must have been at the beginning of June—I discovered a new clutch of eggs in the nest. This time the brood was successfully reared.

The presence of the old nest would indicate that the same pair had bred there in 1940 also. The monthly inspection of the meter by the meter examiner and the slight hum from the instrument did not seem to worry the birds in the slightest.

Incidentally I have got a pair of Magpie Robins nesting in a nesting box on a tree about 15 yards from our front verandah here at the moment. Horse hair appears to be a favourite ingredient of the nest of this species.

HAFLONG, NORTH CACHAR HILLS, ASSAM,
21*st April* 1947.

R. E. PARSONS, F.R.E.S.,
Indian Police.

9.—AN EARLY NEST OF THE TAILOR BIRD [*ORTHOTOMUS SUTORIUS* (PENNANT)]

'The breeding months' of the Indian Tailor Bird 'are principally May, June and July, but in many parts they breed both earlier and later' (Stuart Baker, *Fauna of British India Birds*, Volume II, pp. 411). Whistler makes the same statement almost in identical language (*Popular Handbook of Indian Birds*, 3rd edition, pp. 164). According to Sálim Ali, the nesting season ranges between April and September (*The Book of Indian Birds*, 1st edition, pp. 84). Earlier instances therefore may not be altogether unworthy of being recorded. Perched on a slender branch in a lemon bush I found yesterday (11th April) a fully fledged chick of the Tailor Bird which had obviously left the protection of its nest two or three

days too early. The nest was not hard to find. It was built in a purse made of two leaves in the upper part of the bush; the bottom had given way probably owing to the scarcity of fibrous materials in it and the chick had perforce to leave. It was not incapable of using its wings or it would not have been able to find the comfortable perch it was occupying. The nest must have been built early in March outside the usual normal limits of the breeding season.

IMPERIAL RECORD DEPARTMENT,
NEW DELHI,
12*th April* 1947.

S. N. SEN,
Director of Archives,
Government of India.

10.—OCCURRENCE OF THE WAXWING [*BOMBYCILLA GARRULUS* (LINN.)] IN BALUCHISTAN

When I was coming back from the bazaar to the Staff College on the 1st March I heard an unfamiliar bird call, a loud *tsee* and got off my bicycle. I immediately saw a flock of upwards of twenty waxwings. This sounds a tall story considering the rarity of the bird in India but they were extremely tame and I had no difficulty in checking the black throat, the chestnut forehead and the yellow tips to the tail feather, and of course the crest. This was about half way between the Staff College and the bazaar in a group of fruit trees. I counted twenty, but judging from the calls there were many more. I was unable to obtain a specimen as I had no gun. One or other of the birds flew down frequently to the ground and then after a few moments back to its tree.

QUETTA.
4*th March* 1947.
STAFF COLLEGE,

T. J. PHILLIPS, Major,
9 *Gurkha Rifles.*

[Besides the specimen obtained by Meinertzhagen at Quetta in November—'One of a pair' (*vide* Ticehurst, 'Birds of British Baluchistan', *J. B.N.H.S.*, Vol, xxxi, p. 867 (1927)] we know no other record of its occurrence in Baluchistan. Rare and occasional stragglers have been recorded from Bannu and Kohat in the N.W.F.P. It is perhaps worth noting that the 1946-7 winter was an exceptionally severe and late one in Europe and North and Central Asia. The appearance within our limits of such vagrants as this bird and the swans recorded further on doubtless had to do with it.—EDS.]

11.—ARRIVAL DATES OF WAGTAILS IN UPPER ASSAM

For some years past I have been in the habit of recording in my Fishing Diary the dates on which the first wagtail has arrived in my compound towards the end of the rains.

In case these are of interest to ornithologists I now give them:

1941	25th.	September
1942	20th.	,,
1943	28th.	,,
1944	17th.	,,
1946	25th.	,,

I know little or nothing about birds but assume they cross the Himalayas into Tibet before the commencement of the rains returning again for the cold weather in Assam.

Perhaps somebody would be good enough to confirm this?

Hoogrijan, P.O.
Upper Assam, F. WOOLEY SMITH
30th September 1946.

[It is uncertain what particular species of wagtail is referred to above. All the wagtails except one—Large Pied (*M. maderaspatensis*)—seen in India during the winter months are immigrants from the Himalayas or the country beyond them, to the north: Central Asia, Siberia, etc.

The punctuality with which wagtails arrive in autumn is remarkable, and frequently commented on by observers all over the country. A ringed individual of the Grey Wagtail (*Motacilla cinerea*) has been recorded making its first appearance of the season on a particular lawn on Pali Hill, Bombay Suburb, (scarcely larger than a badminton court) as follows:—

1941	ca.	Mid September.
1942		11th September.
1943	ca.	Mid September.
1944		12th September.
1945		11th September.
1946		21st September. (exceptionally prolonged Monsoon!)

The bird was ringed only in the 1942-43 season; its individuality in the previous season is merely presumed, but since then has been unmistakable. The Grey Wagtail breeds in Kashmir and the Himalayas, and beyond from the Ural Mountains to Kamschatka. The distance from Bombay to its nearest breeding grounds in Garhwal and Kumaon, in a straight line, is about 1000 miles. Travelling over thousands of square miles of country, and finding its way back to this particular few hundred square feet of lawn with such precision and punctuality seems a truly astonishing feat.—EDS.]

12.—ABNORMAL EGG CLUTCHES

On 12th June last year, I found a nest of Hodgson's Wagtail (*M. alboides*) with 10 eggs. This was in the middle of a clump of tamarisk on a shifting shingly island just below Pahalgam, Lidar Valley, Kashmir.

This clutch is unusual and though it is matched by 'clutches of 9 and 11 of *M. a. yarrellii*, possibly by two hens' (*Handbook of British Birds*, Vol. I, page 277), it is strange that the record clutches of 5 and 6 eggs of the Common Sandpiper were also found at Pahalgam by Buchanan in 1907 (*Nidification*, Vol. 4, page 410).

Within a foot of the wagtail's nest there was another of the Common Sandpiper with four eggs. As there are few suitable places around Pahalgam, it is quite likely that Buchanan found his nest on an island more or less in this very section of the river. In the same place, I saw two more normal Sandpiper clutches of four.

It is quite possible that my wagtail's nest as well as those of the Sandpiper recorded in *Nidification* contained eggs of more than one female. Would sudden rises in water level on such islands account for the destruction of newly built nests and therefore concentration on those that survived?

MESSRS. FAIZ & CO., HUMAYUN ABDULALI
75, ABDUL REHMAN STREET, BOMBAY, 3.
BOMBAY,
12*th May*, 1947.

[Enquiry shows that the writer is not quite certain of his identification and the nest with 10 eggs *may* have been that of the Masked Wagtail (*M. a. personata*).—EDS.].

13.—NIGHTJARS ON ROADS

In the last issue of the *Journal*, Vol. 46, page 481, Stanford refers to the 'unexplained' habit of nightjars sitting on roads at night.

In the Vizagapatam District (*JBNHS* 45, p. 343) a young male of *C. macrourus albonotatus* was obtained dusting itself on the road, while in the Birds of Bombay (*JBNHS* 40, p. 173) we have recorded Dung Beetles (*Onthophaga* sp.) from the stomachs of *C. asiaticus*.

Motorists around Bombay have probably noticed that fewer nightjars are now met on our roads at night, than a few years ago. It is possible that the asphalting of roads, combined with the difficulty of seeing dung on a dark surface, may explain their apparent scarcity.

MESSRS. FAIZ & CO., HUMAYUN ABDULALI
75, ABDUL REHMAN STREET, BOMBAY, 3.
BOMBAY, 10*th May* 1947.

[The asphalting of the roads has certainly reduced the number of nightjars previously to be met squatting on them after dark. But it is difficult to agree that the darker road surface has anything to do with the visibility of a bird of such completely crepuscular and nocturnal habits. Again the fact that dung beetles were found in the stomachs of nightjars shot on roads does not by itself suggest that they were collected from dung lying on the road. Neither, we feel is it so important for a nightjar to be able to see dung on a roadsurface for any beetles that may or may not be there. A nightjar hawks its prey in the air, and if the flying beetle is visible to it at dusk or in the dark it would seem to be all that the bird needs. The suggestion that nightjars settle on dusty roads to dust themselves seems more reasonable. And of course at the same time the road, being free from obstructions, may offer better facility for chasing beetles and other insects flying across the open space.—EDS.]

14.—OCCURRENCE OF THE SOUTHERN GREEN PIGEON [*CROCOPUS PHOENICOPTERUS CHLORIGASTER* (BLYTH)] IN CEYLON.

It is, I think, worth recording that on the 5th January 1947, I met with a flock of 30 to 40 (or possibly more) Southern Green Pigeons (*Crocopus phoenicopterus chlorigaster*) in the jungles near Bibile, in the Uva Province of Ceylon. I had gone down to these jungles to try and trace the Ceylon Jungle Bush-Quail (*Perdicula asiatica ceylonensis*) of which I was anxious to procure specimens.

Seeing some Green Pigeons in a species of Banyan tree (*Ficus arnottiana*) I shot one, and, much to my surprise and gratification, on going to pick it up, found that I had obtained a specimen of the Southern Green Pigeon. There were a number of these green pigeons about, in a scattered flock, sitting amongst the dense foliage of nearby trees. After some trouble, I shot another pigeon which proved to be a beautiful male Ceylon Orange-breasted Green Pigeon (*Dendrophassa bicincta leggei*). I then crossed the road and came upon a small Banyan tree with a large flock feeding in it. These proved to be more Southern Green Pigeons, one shot being a female. The remainder of the flock then split up into pairs and small parties and remained in the vicinity.

Bibile is at the foot of the south eastern aspect of the Central mountain cluster; the jungles of the area are extensive, dense and well supplied with Ficus trees in fruit, so it is just the type of country where one would expect to find green pigeons congregating.

The only other record of the occurrence of the Southern Green Pigeon, in Ceylon, is Legge's (page 723) who writes: 'It appears to inhabit (or visit, according to Layard) the extreme North of the island'; and there are two specimens of his collecting in the Poole Museum. He states that—'it is migratory, only appearing in the fruit season, and returning again to the coast of India'. Mr. Holdsworth procured it near Arippu on the north west coast so that it would *not* appear to be entirely confined to the extreme North.' Legge himself never met with it. The present record makes a considerable extension to the known range of this pigeon, which would appear to be a very irregular migrant to Ceylon, during the North East Monsoon; it does *not* appear to have been seen in Ceylon since Legge's day—i.e. for over 60 years.

The whistle of the Southern Green Pigeon is very similiar to the call of the Orange-breasted Green Pigeon, but is louder and pitched in a rather lower key; also when it suddenly flies out from a tree it makes a louder clatter with rather hollow note. It is an adept at clattering out suddenly from the side opposite to that on which the sportsman is approaching, and giving no chance of a shot.

From Stuart Baker's description, it would appear that the two specimens I obtained are typical Southern Green Pigeons. I am, however, sending them to the South Kensington Museum for confirmation.

Galapitakande Estate,
Namunukula,
Ceylon,
10*th January* 1947.

W. W. A. PHILLIPS

15. THE PERSIAN NAME FOR THE FLAMINGO

With reference to the note on Flamingoes from Babar's Memoirs in a recent issue of this journal (Vol. 46, pp. 545-7), it may interest your readers to know that the Persian name for the Flamingo is "Pákhlàn" (cf. Babar's "Baghlan Káz").

Therefore I cannot think that Pákhlán, as above transliterated, has necessarily any connection with Baghlan, the town in N. Afghanistan.

'Southwood' HAMID A. ALI
Mussooree, *I.C.S.* (retd.)
25th May 1947.

16.—FLAMINGOES IN KUTCH—A COMMENT

Mr. Sálim Ali's interesting article, 'More about the Flamingo [*Phoenicopterus ruber roseus* (Pallas)] in Kutch' gives us quite a number of interesting details about Flamingo life. However, I feel some of his references to my observations call for comment. But first of all I must confess that through oversight I omitted to give the period of my visit to the Great Rann.[1] It was between the 26th September and the 20th October 1935. Having made good the omission, I must now pass on in 'self-defence'.

After recording that both Dr. Ticehurst in Sind, and myself in the Great Rann, found seeds of aquatic and lacustrine plants in the stomachs, Mr. Ali remarks: 'There is so far no justification, however, for supposing that these constitute the only or indeed the staple diet of flamingo in these parts. It seems difficult to conceive that sufficient quantities of such seeds, e.g. *Ruppia*, could be washed down by rivers flowing into the Rann from the north-east to sustain a population of this magnitude for so long a period.' In the first place I differentiated between the stomach contents of young flightless birds, and adults capable of flight, for the simple reason that the feeding activities of the young were restricted to the Rann whereas the adults could go further afield. Accordingly, I stated that the stomachs of the chicks '*contained nothing except a collection of small black seeds*' which I subsequently identified as those of *Ruppia*. For the adults shot in the Rann, besides *Ruppia*, I added the seeds of *Scirpus maritima*, and the portions of *Najas* and *Chara*. The inclusion of the others indicated that the adults had been feeding outside the Rann.

From Mr. Ali's account it is evident that he did not examine the stomach contents of any birds obtained in the Rann, but refers to the stomach contents of two adult birds shot in the salt pans at Kandla, a long way from the Rann. He records the stomach contents of these two birds as follows: (excluding the sand) 'a small quantity of greenish vegetable matter like the "scum" from

[1] Jour., *B.N.H.S.*, Vol. 41, p. 12.

the bottom of the salt pans, and a large number (over 50 in each case) of red thread-like "worms" *ca* 10 mm. long, later identified as *Chironomus* larvae.' *Chironomus* is a small gnat (*Diptera*) some species of which are tolerant of salt water and live in the mud. It is unfortunate that Mr. Ali did not examine the stomach contents of birds shot in the Rann, both young and old, in which case he could have either discredited my statement or supported it.

Another difficulty that presented itself to Mr. Ali is that *Ruppia* seeds could support such a population in the Great Rann. *Ruppia* is a most prolific plant and it produces an incredibly large quantity of seeds, and accordingly I see no great difficulty when taking into consideration such a large expanse of water during the periods when the Rann is inundated. *Ruppia* is a brackish water plant and commences life at the break of the monsoon when salinity is low, but no sooner salinity rises it dies off leaving an abundance of seed in the sand. *Ruppia* flourishes in still or gently moving water, but cannot withstand high currents. (For further information on *Ruppia* see my article published in Vol. 45, p. 396.) At the time of my visit the water was a 'mother liquor' for crystals were already forming at the bottom and under such conditions *Ruppia* cannot survive. As already stated in my article I could find no animal or plant life in the water, nor in the mud. The stomach contents of the chicks contained besides the usual compliment of sand '*only* the seeds of *Ruppia*'.

Turning from the question of food to migration and movements during the breeding season, in my article I put forward the suggestion that possibly when the winter rains failed in Spain flamingoes migrated to India, the Rann, to breed. This suggestion arose out of such records as were available to me and I merely attempted to draw certain conclusion from such records which offered a plausible explanation, which Mr. Ali referred to as 'a process of jig-saw-puzzle working in'! It is from such jig-saw-puzzles of Nature that we are finally able to form a complete picture! To this method of deduction Mr. Ali evidently takes objection for he writes—'His suggestion was that if unfavourable natural conditions were encountered in Spain the birds turned about and made for Kutch. The normal breeding season in the Great Rann being September to October, they would get ample time to do the return journey in. Then if they meet with the required conditions here (Kutch), they undertake breeding. Thus the marismas of Spain and the Great Rann of Kutch would, according to him (McCann), be the erratically used alternative breeding grounds of our Indian flamingoes. Personally I did not at the time, nor do I now, find Mr. McCann's 'supposition' a convincing one, but of course it does not do to be too dogmatic in such matters, and more data are needed. Mr. McCann pertinently observes that to obtain any proof the wholesale ringing of birds in the two areas (Spain and Kutch) would be necessary.' The chief objection to Mr. Ali's remarks lies in the fact that he suggested that I used the expression *Indian Flamingoes* whereas I merely referred to the flamingoes that failed to breed in Spain, and asked the question, 'do Spanish birds breed there (the Great Rann) in years when they

cannot breed in the Spanish area?' and with due reserve added: 'of course, this is a mere supposition and further proof is required.' I gave them no *Indian* status! Accordingly the sentence 'Indian' birds 'turned about and made for Kutch?' did not flow from *my* pen but is a picture from his own brush! However, it will be an interesting point to establish whether the flamingoes are 'Indian' or 'Spanish' or a hybrid of the two! This can only be discovered by wholesale ringing in both breeding grounds.

Bombay Natural History Society, C. McCANN
Bombay,

17*th February* 1947.

[Dr. Erwin Stresemann, the celebrated German ornithologist, in a recent letter to Mr. Sálim Ali, commenting quite independently on more or less the very points raised by Mr. McCann, writes:

'. . . I think it would be worth while to make a thorough quantitative and qualitative research on the plankton of the Rann. At other places the little crustacean *Artemia sacua* has been found to be the chief food of the flamingo, and I would be surprised if this was not so in Kutch. These creatures are probably very quickly dissolved in the stomach by digestion, leaving unaffected seeds and such like obstinate matter only; an examination of the stomach contents, therefore, is often quite misleading if this circumstance is not taken into consideration. Some hydrobiologist should be consulted. Nothing definite is known, as far as I know, about the migratory movements of the Flamingo, and it would be most important therefore to continue the ringing of juveniles in spite of its being such a slippery business! I often wondered where the many hundreds of Flamingoes came from which in various years try to propagate at the mouth of the Rhone river in Southern France and almost always fail to do so owing to egg-loving humans. No one seems to know at present whether the former colonies in Southern Spain still exist or not; they cannot possibly be very large. There is no recent record of breeding colonies in Tunisia in spite of so many planes having inspected the Schott region during the war. In some years huge numbers breed at Lake Nekuru in Kenya and possibly at other East African lakes. The migratory movements of the Flamingo therefore seem to cover a very vast area, and I would not be surprised at all if there should be proved an exchange between Asiatic, European and East African colonies. In Asia, colonies are known from the Caspian Sea and other places in the interior. It would be a good thing to do a map of all the breeding colonies known to exist at the present time; but in the question of intercolonial exchange only the marking of quantities of young birds will be really able to help. Couldn't you find somebody to focus his interest and efforts on this task?'—EDS.]

17.—ALPHERAKY'S SWAN (*CYGNUS BEWICKII JANKOWSKII* ALPH.) IN KUTCH

On 9 April 1947 M. K. S. Madansinhji, Yuvraj of Kutch, brought down by air from Bhūj a live specimen with a fractured leg caught on Hamīrsar tank, within the limits of that city, on the previous day. The bird was one of a pair reported to have frequented this tank since 4 or 5 days before. It was said to have been attacked and disabled by a small crocodile, and was picked up fluttering on the shore. Its companion disappeared and was not seen thereafter. The bird lived in the Bombay Zoo (Victoria Gardens) till 14 April but succumbed to its injury. In the post-mortem by the vet the sexing was unfortunately overlooked, but the skin has been added to the collection of the Bombay Natural History Society. The following measurements were taken by me in the flesh: Wing 552, Bill (from forehead feathers) 99, Tarsus 112, middle toe with claw 140, Tail 161 mm. They suggest that it belongs to the East-Siberian race *jankowskii* (better known to Indian ornithologists as *Cygnus minor* Keyserling & Blas.) of which, as far as I know, there is only one other authenticated record from India: 2.1.1911 Tubi, Campbellpur, North-West Frontier Province, shot by a Mr. Hornsby. This skin is also in the Society's collection.

In all there are 3 records of the typical race, *Cygnus b. bewickii*—Bewick's Swan—from within Indian limits: (1) 2.12.1907 Jacobabad, Sind (*Jour., Bom. Nat. Hist. Soc.*, xxiii, p. 456), (2) 30.12.1910 Mardan, N-W.F.P. (*ibid*, xxi, p. 273) and (3) 17.12.1913 Khushdil Khan near Quetta (*ibid*, xxiii, p. 159). The Whooper Swan (*Cygnus cygnus*) has occurred thrice, while of the Mute Swan (*Cygnus olor*) 14 examples were recorded in India up till the end of 1915, from Sind, Punjab, N.-W. Frontier Province and the Baluchi Frontier. (For particulars see 'A Review of the Indian Swans', E. C. Stuart Baker, *J.B.N.H.S.*, xxiii, p. 457) In addition to these I personally know of one more example shot in Sind (? Sakrand) by my brother Hamid A. Ali on 19 February 1913.

Curiously enough this now is the first swan to be reported from within our limits since 1915, i.e. in 32 years. The occurrence of a swan in India is in itself a noteworthy event; its coming as far south as Bhūj (lat. 23° 15 ft. N) is unique. A point of particular interest in connection with the present record is that in the year 1870 or thereabouts Stoliczka claimed (*J.A.S.B.*, xli, 1872) to have seen some swans while crossing the Rann from Kutch to Pachham. On this Hume later remarked (*Stray Feathers*, iv, 33, 1876): 'I take this opportunity of noticing that the Swans which Stoliczka (who was very short-sighted) thought he saw on the Rann between Cutch and Pachham were pretty certainly *Pelicanus crispus* (Dalmatian Pelican) which I have seen from this very locality, and which I saw on the Sind coast and on the western coast of Kattiawar'.

And Hume probably *was* right; but here comes living proof of a swan in Kutch!

33 Pali Hill Bandra, SALIM ALI
Bombay 20,
30*th April* 1947.

18.—PERIODIC ABUNDANCE OF BAR-HEADED GOOSE [*ANSER INDICUS* (LATHAM)] ON CHILKA LAKES

In your editorial comments on Mr. Rahimullah's letter on the occurrence of a Bar-headed Goose near Hyderabad City, you remark that this bird was reported by Hume to be extremely common on the Chilka Lakes in the eighties and that small numbers are still said to visit the place in winter. They were extremely plentiful last winter and in 1945-46 on the Chilka Lakes. My party shot 7 in 2 days and had opportunities of watching large numbers at close range through field glasses. I saw also a report in the *Statesman* of the occurrence of the Egyptian goose at the same place this winter but was not lucky enough to see the bird.

Calcutta, E. C. BENTHALL
13*th May* 1947.

19.—SUSHKIN'S GOOSE (*ANSER NEGLECTUS* SUSHKIN) IN ASSAM

As advised by C. Gimson, Esq., Political Agent, Manipur, I am sending you a goose skin for identification. This goose was shot by me in Manipur in December 1946. It was in the company of a large skein of Greylags.

It is of interest as so far the only geese in Manipur have been Greylag and Bar-head. One Dwarf Goose only has been recorded in past years, and no Whitefront.

Imphal, J. HURRELL
Manipur State, *Lt.-Col.*
Assam,
10*th January* 1947.

[The skin is of Sushkin's Goose (*Anser neglectus* Sushkin), apparently a rare and occasional visitor to Assam, whose breeding grounds still remain undiscovered. The specimen (sex ?) measures: Wing 465, Bill 63, Tars. 80, Tail 136.—eds.]

20.—THE LANGUAGE OF BIRDS

Early on a fine February morning in 1946 my wife and I were lucky enough to have Arundel Park to ourselves and there witnessed an episode of bird-behaviour worthy of record. Many birds are known to adopt a 'territory' which they seem to regard as theirs and defend from intruders of the same species, although quite indifferent to the presence of any other forms of life within it. The intruders likewise seem to recognise the bounds of this territory and to suffer, as it were, from a 'guilty conscience' when invading it, so much so that when challenged by the owners, they never put up a fight but allow themselves to be shoo-ed gently off. The great bird-observer, Kirkman, has shown that this patch of 'private property' extends for a foot or two round each nest of the Black-headed Gull, even in closely packed colonies, its edge being apparently plain enough both to owner and non-owner, though invisible to us. Edgar Chance has demonstrated that the cuckoo takes possession of, or at least established dominance over, a much larger area, extending for many acres. It was therefore with much interest that we saw two swans, evidently a mated pair, methodically clear the end of the lake containing their nest, which—looking down—we could clearly see situated upon a small island therein, from three swans whom they not only drove for some distance down the length of the narrow lake, but who finally took to the air and flew away altogether; but not before the following very illuminating incident had taken place.

All we noticed at first was a sun-lit stretch of water picturesquely set between wooded banks and enlivened by swans, moorhens, and a variety of ducks, some of whom still slumbered on one foot by the water's edge, as though not only humans could be afflicted by a hang-over. As we mounted the path to the right an unwonted flapping broke out and we saw two swans with out-stretched neck take to the air and alight again further down the lake. In a few moments they were joined by a third, whose departure was plainly being hastened by another. At this point we began to take notice and counted five swans altogether—two in the 'home' end of the lake that we had just left and three now swimming in the water beyond and below us. Swans in flight had made us interested, since one seldom has the chance to see them from above. The stretched necks and tense effortful, almost frightened sound, either from wing or throat, that accompanied each beat of the wing, were unfamiliar to us, and both this peculiar sound in flight and the prodigious length of the skid, made by the thrust-out feet on alighting, attracted our attention. Standing still, now, we saw swan *A* and *B*, the home-birds—shall we call them?—by no means satisfied with the clearance, swimming in a dignified but purposive fashion towards the three culprits (as we later decided they must be). There was something inexorable about this concerted attack, for it was delivered (as though by collusion) in such a way that the width of the lake was strategically portioned out, leaving as little room as possible for either to be by-passed. I was reminded of two tennis players rushing to the net. Each bird, of course, adopted the 'fighting-display', head curved down and back, wings

up-arched, and propelled itself in jerks, both feet presumably thrusting in unison.

Birds, *C*, *D* and *E*, appeared to take no notice, till striking distance was reached, when birds *A* and *B*, each selecting one of them, began a real flapping, skimming the water with outstretched neck in the movement that, if speeded up, would end in flight. The attacked birds, meanwhile, made no show of resistance, but scuttled rapidly away and finally took to the air. That is to say, the attacked two departed, but bird *E* remained, now to the rear of *A* and *B*.

The flying pair, *C* and *D*, went off down the lake but, still within sight, wheeled and came back at a higher level, as though their real objective lay in distant waters, far behind the 'home' and to our left as we turned to face it. Wheeling still more sharply they passed from view behind the shoulder of hill on which we stood, and our attention returned to the lake. Here, birds *A* and *B* had turned in the water and were presently behind bird *E;* that is to say on the home side of him. This manœuvre would evidently enable him also to be ejected. But, before hostilities could begin, back flew birds *C* and *D*, passed above the trio, wheeled and came down nearer to bird *E* than to *A* and *B*.

Was the whole performance to begin again? Birds *A* and *B* set to work, quietly efficient as before. No fluster, no bluff; just a dispassionate firmness; something like policemen about to check a Car Licence. But this time, no warnings were needed; all three birds, *C*, *D* and *E*, began a hasty flapping flight down the lake, which merged gently into a slow rise above the surface; then, with gaining height and a wheel round and up, passed us on eye-level, and away into the landscape where they finally disappeared. This flight was just the same in direction as that of *C* and *D* before. Evidently, all three were now going to the original objective, perhaps returning to the water from which they had come.

Although we remained in the park for another half-hour they did not re-appear, and we saw swans *A* and *B* back on their island, tending the nest.

Now, all this may seem exceedingly trivial and ordinary, yet it contains elements of deep interest. Apart from the obvious collaboration of swans *A* and *B*, which seems to indicate some mutual understanding and unity of aim, besides a power of foresight disclosed by the strategic positions taken, there is in the behaviour of swans *C* and *D* something even more striking, namely their return to a danger from which they had escaped. Why this return? Having gone off again, this time accompanied by swan *E*, they do not return. It seems hard not to suppose that they came back to fetch him. If that were so, it follows that they regarded him as one of their party, noticed his absence, remembered where he was and reflected that he might fail to follow!

At that distance, it was hard to be sure, but judging from his size he might easily have been a last year's youngster just turned white. Cygnets remain attached to their parents for some time, and although one seldom sees two broods, one gray and the other white, one often sees clusters of adult swans showing no

animosity among themselves, who may easily be of common parentage and not yet paired; for life-long batchelors and spinsters among swans are known to all park-keepers experienced in their ways.

The assumption of kinship presents, at any rate, the simplest theory, and if kinship were absent it only makes more impressive an act of obvious camaraderie, almost of 'rescue'. But the question I ask myself is, how these combined operations are organised? Which mind decides, leads or directs, and how does the other know its part? Given the ordinary human tendency to read ourselves into the animals, it would seem for all the world as though the returning two had brought courage to their fellow, or even said to him, 'Now, come along old chap, this way; make an effort!' and that thus exhorted he dared and did. But which of the two parents first noticed the absence of 'our Bertram', and when and how did the other come to share this misgiving?

22*nd April* 1947. CLAUDE A. CLAREMONT

21.—SOME FURTHER SUGGESTIONS FOR FIELD ORNITHOLOGISTS IN POST-WAR BURMA

In the *Journal* for December 1946, under the above heading, Lt.-Col. J. K. Stanford has directed attention to some of the more glaring gaps in our knowledge of the status and habits of Burma birds. The list of queries could be expanded almost indefinitely, especially if one were to include the mountain birds, and also problems connected with the geographical distribution of subspecies; but there are just one or two that have been in our minds for some time, which I would like to add to the list.

Sitta formosa. Beautiful Nuthatch

This is a very lovely and quite unmistakeable bird, yet records of it from Burma are very few. In early December 1938 I climbed a 5,000 ft. hill in the Arakan Yomas on the border of the Thayetmyo and Minbu districts, and saw several of these birds in the evergreen forest along the top, and collected one specimen; yet there is no record of this bird from Mt. Victoria, which is not so very far away to the north and which has been intensively worked, nor elsewhere from Arakan; Gen. Christison's paper (*Journal*, April 1946) does not mention it.

In early December 1944 I saw a solitary bird at about 6,000 ft. near the junction of the 'Nmai Hka' with its east bank tributary the Mekh Rame, in far Northern Burma. The only other records known to me are one from the Kachin hills and one from Kengtung.

Surely it must occur at some intermediate places between these widely scattered points?

Cisticola exilis. Siamese Golden-headed Fantail Warbler

Oates found this species in the Pegu plain, near Myitkyo and the Pegu-Sittang canal. There is no subsequent record. In July 1941 we searched the places where Oates found it, but without

success. Has it been driven away by the development of the wide grassy plains of Oates's day into paddy fields?

Pyctorhis altirostris. Jerdon's Babbler.

This bird, which was widely distributed in the Irrawaddy-Sittang Plain in Oates's day, is now (so far as we know) confined to a small grassy swamp north of Myitkyo at the entrance to the Pegu canal, where we found it in July 1941. Does it occur elsewhere, or is it also on the point of vanishing from Lower Burma?

Batrachostomus. Frogmouths.

Nothing whatever is known about the voice and habits of these mysterious birds in this country. The few records are widely dispersed—Myitkyina district (where I picked up a dead bird in hills west of Mohnyin), Mt. Victoria, Southern Shan States, Karenni, and the Thaungyin valley.

If this species is strictly nocturnal we shall not make much progress with it until somebody records its call-notes.

With regard to Part II of Lt.-Col. Stanford's note, what we want is a list of species not described in 'Birds of Burma' that might reasonably be expected to occur in this country. If there are any species new to science still to be discovered I do not think they would exceed one or two in number, and the remainder of the 50 (or so) species that Messrs. Kingdon Ward and Stanford are inclined to wager they could find in Northern Burma can only be species that have been recorded elsewhere, e.g. India, South-East Tibet, Yunnan, Thailand, Malaya. So far as Indian birds are concerned I described, in square brackets, all those given in the Fauna of British India volumes that I thought might be found in Burma, but I could not do the same for Tibet etc. having no literature on the avifauna of those countries. (One of these square-bracket birds, the Long-billed Wren-Babbler, *Rimator malacoptilus*, I saw near the Taron-Tamai junction in Feb. 1945). It is clear from Lt.-Col. Stanford's note that most of the species he has in mind are those recorded by Forest in Yunnan; if he would be kind enough to send me a list, with brief field descriptions, of the 'probables' I would be only too pleased to include them in a revised edition of 'Birds of Burma' when it is possible to produce one; since the object of the book is to describe all species that might be met with in Burma. One cannot cover *every* possibility—unexpected finds like *Pyrotrogon wardi* and *Luscinia obscura* will no doubt continue to be made—but one can increase the odds against finding undescribed birds.

In conclusion I can endorse the remark about the remarkable way in which even a noisy or conspicuous species can be overlooked. The Himalayan Cuckoo (*Cuculus optatus*) has a distinctive call-note, and is one of the noisiest birds in Sinlumkaba, Bhamo district, in March and April; yet there seems to be only one record of this species from Burma—from Maymyo—and some doubtful records from the Chin hills.

MANDALAY, B. E. SMYTHIES.
10th May 1947.

22.—'SHAMMING DEATH'—SNAKES

Dunbar Brander's letter in Vol. 46, No. 2, inviting further observation on animals shamming death opens up an interesting subject.

I have always kept a mongoose as a pet in the house, and had a dozen or more over a period of 30 years. With these I staged fights with snakes especially cobras. The cobra in fact is the only snake that would put up a fight to the finish. The others kraits, wolf-snakes, and water snakes will either curl up or bury their heads in the coils and resign themselves to death.

The Chequered Watersnake (*N. p. iscator*) in particular will 'sham death'. I have had them do so on several occasions. Specimens from four feet or more to eighteen inches. I will go further and say that for proof of this one need only get one of these snakes and allow a mongoose to worry it and a perfect 'shamming' will follow.

This is done by the snake sometimes standing up and striking at the mongoose three or four times after which it sinks to the ground and in slow motion turns over on to its back maintaining a slow muscular movement similar to a snake with its head beaten in.

The mongoose as often as not will leave the snake without biting or harming it in any way. When danger seems past the snake makes a hasty retreat only to repeat the 'shamming' when the mongoose arrives.

This is no exception but the rule with this species and need only be tried out for proof.

H.Q., Bombay Area, A. St. J. MACDONALD
Bombay,
29*th February* 1947

23.—AN UNCOMMON HABIT OBSERVED IN THE FROG *RANA ERYTHRÆA* SCHLEG.

The curious habit of leaping over the surface of the water which is so typical of the Water Skipper, *Rana cyanophlyctis*. Schneid is well-known to be very uncommon amongst Indian frogs generally. This habit has also been attributed to the Indian Bull-Frog, *Rana tigrina* Daud. but has not yet been authenticated, as far as I am aware. Furthermore, even if the species is able to, it certainly does so very seldom. Boulenger (1890), Fauna of British India, states of *R. tigrina*, 'It is essentially aquatic, and is said, when frightened, to jump over the surface of the water much in the same way as on land.' W. S. Berridge in 'All About Reptiles and Batrachians (1935)' also states, 'When endeavouring to escape capture it has the curious habit of leaping over the surface of water just as if it were upon land.' With reference to this habit in two other species, C. McCann (1932), 'Notes on Indian Batrachians', *Journal of the B.N.H.S.*, Vol. xxxvi, No. 1, speaking of the habit in *R. cyanophlyctis* states, 'I know of no other frog that is capable of performing this feat, though it has been

attributed to *R. limnocharis* and *R. hexadactyla*. Annandale[1] has rightly pointed out that *R. limnocharis* is quite incapable of performing this feat and that *R. hexadactyla* does so quite feebly on account of its large size.'

As regards my own observations of Indian frogs, I can assert, without any measure of doubt, that *Rana erythraea* frequently leaps over the surface of the water when alarmed. At Mymensingh, Bengal, in July 1944, I observed this species and made the following recording in my note-book:—'These batrachians were found in quite large numbers round the borders of some small ponds, chiefly amongst the vegetation. On being disturbed, they either swim away from the edge, or, more frequently, they jump away over the surface of the water in a manner akin to the habit of *Rana cyanophlyctis*. They are, however, very much lighter on the surface than *R. cyanophlyctis*, and appear to use this habit as much, or even more.' In the case of *cyanophlyctis*, the movement may be described as a 'skip' or 'shuffle' over the surface, but *erythraea* moves by a series of distinct jumps.

I suspect that *R. limnocharis* also sometimes practises this habit, though less frequently, and more after the manner of *R. cyanophlyctis*. My evidence on this point is, unfortunately, not quite conclusive.

96, Mortlake Road,
Kew, Surrey, J. D. ROMER, F.Z.S.
England,
25th February 1947.

24.—MATING AND THE PARENTAL INSTINCT OF THE MARSH CROCODILE (*C. PALUSTRIS* LESSON)

There is practically no scientific data on how Crocodiles mate, and I think, few people have seen crocodiles in the act of mating. It was not until recently this year that I could safely say that I had seen it. It was on the 19th March that my brother K. S. Nirmalkumarsinhji and I motored to the Shetrunji River. Here, at one of the deep 'Dharas' (deep pools) we saw two crocodiles swimming on the surface of the water, heading to meet each other. Then as they reached one another, one of them made a swirl as it turned round and dived. It reappeared some distance away and then followed the other until the leading crocodile dived. I have witnessed such behaviour time and again and since this was at the height of the mating season it was no surprise to me.

Then we drove to another 'Dhara' where we had news of two large crocodiles, and on arriving there, we waited for an hour without seeing anything. After lunch taking up my field-glasses I noticed a crocodile with head and tail out. I passed the glasses to my brother to have a look, remarking at the same time that one had already appeared. Looking in he said there were two and mating, and handed back the glasses. And there they were, head,

[1] Rec. Ind, Mus., Vol. XV, p. 122 (Bombay Streams Fauna).

neck and shoulders, one posed over the other, clearly visible. They ducked and reappeared two or three times in the same position, and I saw a lateral movement after which they separated. The crocodiles had definitely mated. The time taken must be about two to three minutes and it was then exactly 1-30 p.m. After separation both crocodiles submerged and surfaced at odd intervals until at 2-45 p.m. I saw them mating again. This time one crocodile surfaced and had its tail tip out. Then after 10 minutes it moved towards a sand bar where the water was about knee deep. I expected it to emerge but no; it remained stationery for at least another five minutes. Then the other crocodile surfaced and seeing its mate, immediately swam towards it. As it came closer to its partner, I distinctly saw it with closed mouth raise its head and neck high out of water, pointing its snout at an angle of about 70 degrees, for a few seconds. Then as the two met, I saw the male trying to mount and the female circling until the male actually mounted, gripping the female firmly. They were now in fairly deep water and I could only see their bobbing heads in and out of the water. At times only the female's snout was visible at others completely disappearing, reminiscent of duck (female) in mating. However, the male never attempted to grip the female with its jaws and when head and entire neck of both were visible, the angle was approximately the same. This lasted three minutes after which they completely submerged. The next I saw them they were about 60 feet apart. How long the two copulated under water I cannot say but they were submerged for at least five minutes. Nevertheless, what little I had seen of the mating of these reptiles was indeed a rarity. It is evident from this experience that mating may take place in water or perhaps on land by night, though I do not see how that would be possible. Judging from the heads, the two crocodiles were approximately the same size and between 7 and 8 feet in length. The males are on the average much slimmer than the females at this time of the year and I agree with Mr. McCann that fertilization must take place at quite an advanced stage when the ova are well developed. He had also surmised that mating takes place in water, as I had always believed, but lacked sufficient proof on the matter.

Parental Instinct

The question is: Does the Crocodile take any parental interest? My answer is Yes—but only to a certain limit and when conditions necessitate it. Here I may make it clear that conditions for parental care may not arise at all: such as when the river is in flood or when the young have easy access to water without exposure to danger. From my experience, the parental instinct is aroused at the time of the eggs hatching, and lasts until the young crocodiles reach safety and are at home in the water. I have seen a female crocodile keep guard over the young on the day of hatching. This was revealed to me some years ago, when a particular crocodile kept to one area of the lake close to where